Kerotest Develops Refrigerant Charging Stand

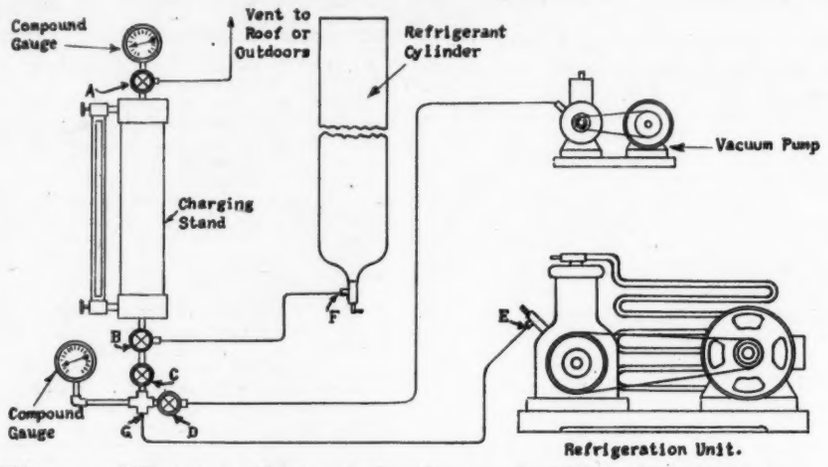


Diagram of Kerotest refrigerant charging stand which is described below.

* * *

PITTSBURGH—For charging condensing units or small service drums to be taken out on individual installations, engineers of the Kerotest Mfg. Co. have developed a new refrigerant charging stand, J. S. Forbes, treasurer, announces.

As shown in the accompanying picture, the stand consists of a charging drum, liquid charging cylinder, vertical gauge glass, and the necessary control valves and pressure gauges.

Kerotest diaphragm packless valves with forged brass bodies are used for control. The annealed gauge glass is mounted behind a liquid level scale of laminated shatter-proof glass for protection of the operator, Mr. Forbes states. Calibration on the gauge glass are in ounces of the refrigerant charged, at 70° F.

Gauge and scale both have a metal shield which can be removed should glass replacement be necessary.

All joints are soldered, and the system pressure-tested before shipment. Compound gauges indicate the pressure under which a charge is being made.

The charging stand is made in two sizes, one which holds 7 lbs. of sulphur dioxide or 4½ lbs. of methyl chloride, and a larger one which holds 11½ lbs. of sulphur dioxide or 8 lbs. of methyl chloride. Standard connections are for ¼-in. flared copper tubing, although connections are also available for ⅜- and ½-in. tubing.

Referring to the drawing above, directions for operating the charging stand are as follows:

1. Connect a vacuum pump to valve D. Close valves A and B, and open valve C. Seal cross outlet G. Run pump six hours to dry charging cylinder. (This operation is only necessary on installation of the equipment, or when the cylinder has been exposed to atmospheric conditions).

2. Connect the *inverted* refrigerant supply cylinder to valve B, and purge this line before tightening flare nut on valve B. Then close valve C, and open valves B and F. The charging cylinder can then be filled by slightly cracking valve A. When the gauge is nearly full, close valve A, then valve B. The stand is now ready to charge, a condensing unit or service drum.

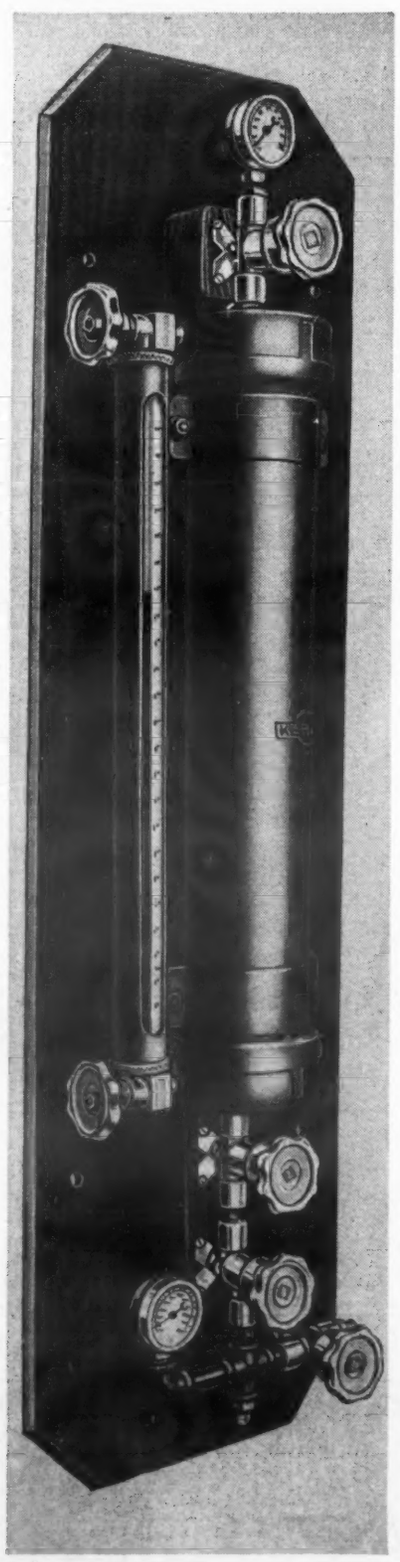
3. To charge a unit, first evacuate it by connecting it to outlet G and running the vacuum pump with both unit valve E and valve D open. When a vacuum has been pulled for 30 minutes, close valve D and stop the pump. Then open valve C and watch the gauge glass.

When the proper amount of refrigerant has been charged into the unit, close valve C. Then drive the remaining liquid out of the line attached to the unit by heating it, close valve E, and disconnect the charged unit.

To refill the charging cylinder the operations of item 2 are repeated.

Several condensing units or small service cylinders may be charged from one filling of the charged stand, Kerotest engineers state. Moreover, it is unnecessary to weigh or re-weigh small service drums during filling, to ascertain the weight of refrigerant in them.

For Service Companies



This is the new Kerotest refrigerant charging stand for use in charging condensing units, or small drums to be taken on service calls.

1933 GRAYBAR ILG-KOLD WILL BE SHOWN APRIL 1

(Concluded from Page 1, Column 5)

ing any manual cold control device, Ilg engineers claim. Through this method of control, the compressor is operated until ice cubes or desserts are frozen, at the same time the rest of the refrigerator being kept at correct temperatures, they declare.

The evaporator is of the dry direct expansion type, coils of seamless copper tubing being cast in aluminum. Each ice cube tray sets directly on the low temperature surface on all but two models.

The compressor operates at approximately 280 r.p.m. It has a counterbalanced crank shaft operating on Hyatt roller and Timken tapered roller bearings. It is driven by a V-type belt, coupling a 1/6 hp. motor of the capacitor type.

Bearing construction of the compressor provides for constant operation in a bath of oil. The combined design of the compressor and freezing unit provides constant oil return to the crankcase.

Finned-type condensers are air cooled by a four-bladed fan.

Specifications of the new Graybar models are printed on page 22 of this issue.

Liquid Cooler Moves to New Plant in Detroit

DETROIT—Offices and manufacturing equipment of the Liquid Cooler Corp., manufacturer of Temprite beverage coolers, have been moved from the company's old Russell St. quarters to a larger building at 1349 East Milwaukee Ave. here.

Production of beverage cooling equipment will be increased immediately to supply demands which the company's officials believe will be made if beer is legalized in the near future.

THE NEWSPAPER OF THE INDUSTRY

ELECTRIC REFRIGERATION NEWS

WRITTEN TO BE READ ON ARRIVAL

Registered U. S. Patent Office

ESTABLISHED 1926. MEMBER AUDIT BUREAU OF CIRCULATIONS. MEMBER ASSOCIATED BUSINESS PAPERS.

VOL. 8, NO. 13, SERIAL NO. 210
ISSUED EVERY WEEK

DETROIT, MICHIGAN, MARCH 29, 1933

Entered as second-class matter Aug. 1, 1927

THREE DOLLARS PER YEAR
TEN CENTS PER COPY

CREDITORS COM. IN CONTROL OF COPELAND PLANT

New Financing Stopped By Bank Jam in Michigan

MT. CLEMENS, Mich.—Control of Copeland Products, Inc., veteran manufacturer of electric refrigerators, is in the hands of a creditors' committee. Resignations of William Robert Wilson, president, and Edward H. Brown, vice president, have been requested by the committee. W. D. McElhinny, vice president in charge of sales, and John R. Replogle, chief engineer, left the organization Monday. The committee is holding meetings regularly with a view to reorganization of the company.

Serving on the committee are Ralph Romer of the First National Bank of Detroit, chairman; Don Valley of the Guardian National Bank of Commerce; Lester U. Larkin of the Larkin Refrigerating Corp.; A. P. Lauer of

(Concluded on Page 6, Column 1)

Electrolux Plans Big Advertising Drive

NEW YORK CITY—A $500,000 advertising campaign in connection with the new air-cooled gas refrigerator has been launched by Electrolux Refrigerator Sales, Inc., H. H. Springford, president, announced last week.

Kelvinator Builds 2 New Water Coolers

DETROIT—Prices have been reduced on Kelvinator water coolers and two new coolers to sell under $100 have been added to the line, according to J. S. Sayre, sales manager of Kelvinator Corp.

"Prices now fixed on our line of 1933 water coolers are in accordance with Kelvinator's decision to give its customers the benefit of the present low prices in the raw materials field," Mr. Sayre explains.

The two new water cooler cabinets are similar in design and construction to the standard models, but are slightly smaller.

Capacities of the two new units are the same—one gallon of water an hour

(Concluded on Page 14, Column 4)

UPWARD TREND IN 90 DAYS SEEN BY LEWIS

By Elston D. Herron

DETROIT—"Within the next 90 days, we shall see a definite change in business sentiment. Commodity prices are turning upward, and with rising prices, there will be a return of confidence. We have gone through the test of a young nation, and have kept our fortitude."

So said Howard E. Lewis, treasurer of Kelvinator Corp., when he addressed members of the Detroit Adcraft club at their meeting in the Hotel Statler here on March 24.

"From a business point of view," said Mr. Lewis, "the greatest difficulty

(Concluded on Page 6, Column 2)

5 MEN DISCUSS SERVICE BEFORE DETROIT A.S.R.E.

Wile, Braun, Sorensen, Kessler, and Born Give Talks

DETROIT — Service management, service education, and several phases of household and commercial service were considered by five speakers before the local section of the American Society of Refrigerating Engineers here Monday night. The assemblage comprised service men from refrigeration firms all over Michigan.

Frank R. West, vice president of the group, introduced the temporary chairman of the meeting, T. S. Pendergast of Universal Cooler Corp. Speakers were A. H. Kessler, national service manager of Grigsby-Grunow Co., Chicago; Roger K. Braun of Kelvinator Corp.; E. P. Sorensen, president of Utilities Engineering Institute, Chicago; D. D. Wile of Detroit Lubricator Co.; and Elmer F. Born, service man-

(Concluded on Page 13, Column 1)

Norge Recalls Workers At Muskegon Plant

MUSKEGON, Mich. — The Norge Corp. recalled several hundred employes, who had been temporarily laid off because of the banking holiday, to work last week at its Muskegon Heights plants.

1,500 Salesmen Attend N. Y. Frigidaire Meeting

New Line Shown by Factory Crew; Biechler Tells of Chances for Profit

By George F. Taubeneck

NEW YORK CITY—More than 1,500 salesmen and dealers connected with Con Eakin's New York Frigidaire organization packed the ballroom of the Waldorf-Astoria hotel here all day Friday, March 25, to see the 1933 Frigidaire line and hear men from the factory tell how it best can be sold. A two-day commercial school was jammed into one the next day for that division of the New York Frigidaire branch.

President E. G. Biechler of Frigidaire Corp. was presented at the morning session, and expressed the opinion that, equipped with a revamped program and redesigned line, Frigidaire salesmen should make more money this year than they did last.

Two talking pictures enlivened the morning session. Lowell Thomas was starred in one; H. W. Newell, vice

(Concluded on Page 6, Column 5)

FRIGIDAIRE LICENSED ON LARKIN PATENT

CLEVELAND—Frigidaire Corp. has recognized the validity of Lester U. Larkin's patent No. 1,776,235 on cross-fin coils for commercial refrigeration by taking out a license, with sub-licensing privileges, from the Lawa Estate, according to Mr. Larkin.

The Lawa Estate was created some time ago with the Guardian Trust Co., of Cleveland as trustee to hold Mr. Larkin's patent No. 1,776,235 and others relating to cross-fin coils.

Frigidaire Corp. has granted sub-licenses with price stabilizing provisions to his company, the Larkin Refrigerating Corp. of Atlanta, Ga., and to Kelvinator Corp. of Detroit. It is understood that Frigidaire is prepared to grant sub-licenses to other companies in the industry.

Norge Prices Cut From $20 to $55

DETROIT—Price reductions ranging from $20 to $55 have been placed on its refrigerator line by Norge Corp. here, according to John H. Knapp, vice president in charge of sales. The reductions went into effect on March 25. Definite new prices cannot be given as Norge Corp. sets its prices according to zones.

REFRIGERATION MANUFACTURERS ARE READY FOR BEER

TEMPRITE BUILDS 100 BEER COOLERS DAILY

By Elston D. Herron

DETROIT — With its production facilities considerably increased because of its new, larger quarters on Milwaukee St. here, Liquid Cooler Corp. is speeding manufacture of its Temprite beverage coolers, and will be turning out the units at the rate of 100 per day by the end of this week, according to P. Fred Lesley, general manager of the organization.

The coolers are being made in sizes with capacities ranging from 7 gals. per hr. to 100 gals. per hr., and are available in models constructed to cool not only one beverage, but two and three beverages simultaneously, says Mr. Lesley.

Liquid Cooler Corp. has just reached an agreement with Kelvinator Corp. whereby the latter's distributors and dealers will handle Temprite cooling apparatus, and will sell the coolers separately or as a single unit combined with Kelvinator commercial refrigeration equipment.

A contract has also been signed by Liquid Cooler and Brunswick-Balke-Collender Co. officials specifying that the Brunswick organization will standardize on use of Temprite coolers in counter cooler workboard units ("novelty boxes") which are sold already equipped with cooling apparatus.

Trupar, Servel, Starr, and Copeland

(Concluded on Page 9, Column 1)

YORK RECEIVES ORDERS FOR BREWERY EQUIPMENT

YORK, Pa.—York Ice Machinery Corp. has received orders from breweries in various parts of the country for over $100,000 of refrigeration equipment. Most of these orders were placed within three days after the introduction of the beer bill in congress.

In addition, the company has had inquiries for, and has quoted on, brewery refrigeration equipment totaling $1,155,000.

The orders received are for ammonia compressors, condensers, brine coolers, and other auxiliary equipment, officials of the company state, and are to expand present existing brewery plants. In each instance the orders call for immediate delivery and are not contingent in any way upon the progress of the bill at Washington.

American Blower Studies Brewery Market

DETROIT—Breweries will form a good market for air-conditioning products with the return of beer, it is disclosed in a survey just completed by American Blower Corp., Detroit.

The survey, made by L. L. Simmons of the company's air-conditioning department, indicates that much antiquated equipment in old breweries will be replaced with modern air-conditioning and ventilating products.

"Pure air, and temperature and humidity control are necessary to produce good beer," says Mr. Simmons, who points out that some form of air conditioning is needed in practically every manufacturing department of a brewery.

"Air conditioning," he continues, "is, of course, of the utmost importance in the fermenting rooms. The speed of fermentation is controlled by varying the temperature.

"Temperatures in fermenting rooms should have a range of from 36° to 48°

(Concluded on Page 11, Column 1)

SALESMEN LEARN TO SELL KELVINATOR EQUIPMENT

DETROIT—Kelvinator Corp. is preparing its commercial refrigeration salesmen for beer equipment sales by conducting a series of training schools for these men in key cities throughout the United States, according to H. W. Burritt, vice president in charge of sales.

First of these schools was held in Detroit late last week, and other schools are being held in Chicago, Minneapolis, St. Louis, and Cincinnati by A. E. Knapp, commercial sales engineer, and in Pittsburgh, New York City, Philadelphia, Boston, and Washington, D. C., by John Wyllie, Jr., another commercial sales engineer.

The schools are designed to supply commercial refrigeration salesmen with technical information concerning problems of beer refrigeration, and the proper types of equipment for various applications, according to Mr. Burritt.

Kelvinator has reached an agreement with Liquid Cooler Corp. of Detroit, by which the Kelvinator sales organization will sell Temprite bever-

(Concluded on Page 9, Column 4)

FRIGIDAIRE DEVELOPS DRAFT BEER COOLER

DAYTON—Frigidaire Corp. has just announced equipment for cooling of draft beer.

The new equipment is an addition to the company's standard line of carbonated beverage coolers. Designated by the factory as models TT-12-CC with two coils for light and dark beer and TT-4C, which has one beer coil, the equipment is of the double refrigerant, water and beverage cooler type and is so constructed, that the beer coil may be cleaned and sterilized by live steam or hot cleaning solutions.

Engineers who designed this particular feature point out that at least three hours were required to "steam out" beer coils in pre-prohibition days

(Concluded on Page 10, Column 4)

SHIPLEY SEES OPENING OF $40,000,000 MARKET

YORK, Pa.—Return of legalized beer will provide a stimulus to the refrigerating machinery industry of the country as the potential new business to be derived from this source in the next three to five years is estimated at $40,000,000 or more than $8,000,000 a year, according to William S. Shipley, president of the York Ice Machinery Corp., and president of the Refrigerating Machinery Association, a national organization of manufacturers of large refrigerating machinery.

"Before the advent of prohibition the brewery industry was the second largest user of mechanical refrigeration in the United States," Mr. Shipley stated. "In 1914, the 1,225 breweries then in operation were equipped with 2,456 refrigerating machines having refrigerating capacity equivalent to the melting of 172,871 tons of ice every 24 hours.

"According to latest available infor-

(Concluded on Page 10, Column 5)

Russ Designs Line of Beer Dispensers

CLEVELAND—Russ Soda Fountain Co. has designed an extensive line of electrically refrigerated beer dispensing equipment, details of which will be announced soon, according to L. N. Lucas, sales manager of the company.

Brunswick Brings Out New Line Of Counters

CHICAGO — Brunswick-Balke-Collender Co. has just announced the development of a new line of beer service fixtures, including a "counter cooler workboard unit" which the company will sell complete with electric refrigeration, beer-cooling coil, and workboard. This is a cooling and dispensing assembly designed to fit under the bar counter proper.

This company was one of the leading makers of beer-serving equipment before prohibition, and for the past 13 years has been engaged in the manufacture of billiard tables, bowling alleys, etc.

Orders totaling $50,000 for 15 carloads of raw materials to be used in beer-fixture construction—birch, fir, walnut, Prestwood, zinc, steel, copper, etc.—were ordered for shipment to Brunswick's Muskegon (Mich) plant last week, and approximately the same amount is expected to be ordered this

(Concluded on Page 10, Column 2)

CONSOLIDATED HAS NEW LINE OF BEER COOLERS

GRAND RAPIDS, Mich.—Equipment for dispensing draft and bottled beer, and a beer-keg cooler have just been announced by H. A. Hawn, president of the Consolidated Equipment Sales Corp. All models are designed for use with electric refrigeration.

To dispense draft beer, a cabinet with two beer faucets and one water faucet has been developed. This unit is 30 in. wide and 30 in. high, and of a height which permits it to be placed under bars or counters of standard sizes. A larger draft dispensing cabinet is offered in a 44-in. width, with one water and four beer faucets, Mr. Hawn announces.

Another type of case has been designed to dispense bottled beer. These models have a storage space in the bottom of the cabinet, and a compartment in the top from which bottles can be served. Both compartments are refrigerated.

The standard keg cooler has a capacity for two kegs of beer, both of which can be dispensed from simultaneously, Mr. Hawn states. These

(Concluded on Page 10, Column 5)

FEDDERS ANNOUNCES COOLERS, DISPENSERS

BUFFALO—A line of electrically refrigerated stationary and mobile coolers and dispensers for serving bulk and bottled beer has been designed by the Fedders Mfg. Co., according to L. F. Fedders, president.

The company has also brought out a line of self-contained cooling coils built for insertion in the ice compartments of old fashioned bars. These coils are available in several standard sizes to provide a wide range of capacity in gallons-per-hour. They provide automatic temperature control, Fedders engineers claim. Their ample cooling capacity eliminates the old necessity for "working" several faucets alternately while waiting for the cooling effect of ice to catch up with the demand.

For places where space is at a premium, the Fedders organization has introduced its "Cabinet Cooler" which contains the refrigerating coil in mahogany or walnut finished steel cabinet equipped with either one or two faucets.

The cabinet cooler occupies floor space 15 in. square. It can be had with coils in several standard capacities. This model is available with ¼-hp. condensing unit mounted in base of cabinet, or with or without separate compressor units up to 1 hp. for remote installations.

Based on a 15° F. temperature drop, the above bar type of ice-cooling coil

(Concluded on Page 10, Column 3)

ESCO OFFERS NEW MODEL BOTTLED BEER COOLER

WEST CHESTER, Pa.—Esco Cabinet Co., manufacturer of milk and beverage cooling cabinets, is now offering a new model beverage cooler which is especially adapted for the cooling and storage of bottled beer. It is designed for operation with electric refrigeration.

The new beer-cooling cabinet follows the general style of Esco beverage coolers but incorporates a number of new features. The lids and tops are covered with a special type of material designed to stand up under hard usage in the dispensing of cold drinks.

Esco's new beer-cooling and storage cabinet is now available in two standard sizes, models D-4 and D-8.

Grunow Has WON PUBLIC and Thousands of Dealers One Opportunity TO NEVER BEFORE has to a NEW PRODUCT!..

Grunow alone uses CARRENE the SAFE Super EFFICIENT, TROUBLE FREE, SERVICE FREE, refrigerant that ENABLES YOU TO KEEP THE PROFIT after YOU'VE MADE IT!

America wanted a "new deal" in refrigeration, and Grunow gives it.

The "gadget era" is over. You can no longer sell a costly article, supposed to give a life-time of service, on the strength of its containing a 10c dish pan or an automatic spoon wiper.

Today America is buying on value *and value alone*.

Everything that is sold today must stand the acid test of hard-boiled comparison, point by point and value by value.

Talking Points There Must Be — And Grunow Has Them All!

BEAUTY . . . that puts it far in advance of any other refrigerator. That shouts its message in tones so loud that no housewife can ignore it.

EFFICIENCY . . . never before achieved. Efficiency that has been checked and double checked by actual side-by-side tests with every make of refrigerator on the market.

CONVENIENCE . . . waist-high refrigeration that makes an instant hit. Shelf arrangement unique and intriguing to every woman, offering convenience never before built into a refrigerator.

FINISH . . . Three coats DuLux, baked on under high temperature. Finest that can be put on. Put on to stay on. Does not crack, chip or turn yellow.

ICE CUBES . . . in abundance to take care of any sized family, with the fastest freezing time possible.

CONSTRUCTION . . . built for a life-time of service of the finest materials that money can buy. Acknowledged to be the most rigid and costliest cabinet ever introduced by any manufacturer.

UNIT . . . the simplest, without belts, pulleys and surplus parts of any kind. So vibrationless that a coin may be balanced on the unit itself, yet so efficient as to create a new standard in refrigerator operation.

REFRIGERANT . . . Carrene—Super-Safe and Super-Efficient. The only refrigerant in use today that permits the building of a Grunow-type refrigerator, at Grunow prices.

Plus over twenty more unusual features, many of them exclusive.

GRUNOW CORPORATION

THINK THIS OVER CAREFULLY

Above all else, the public is thoroughly sold on having a refrigerator that "does not run much." That spells economy to them —and rightly so.

ACCEPTANCE OVERNIGHT!*

Acclaim the Grunow as the

MAKE MONEY THIS YEAR!

AMERICA Paid Such a TRIBUTE

And No Wonder!

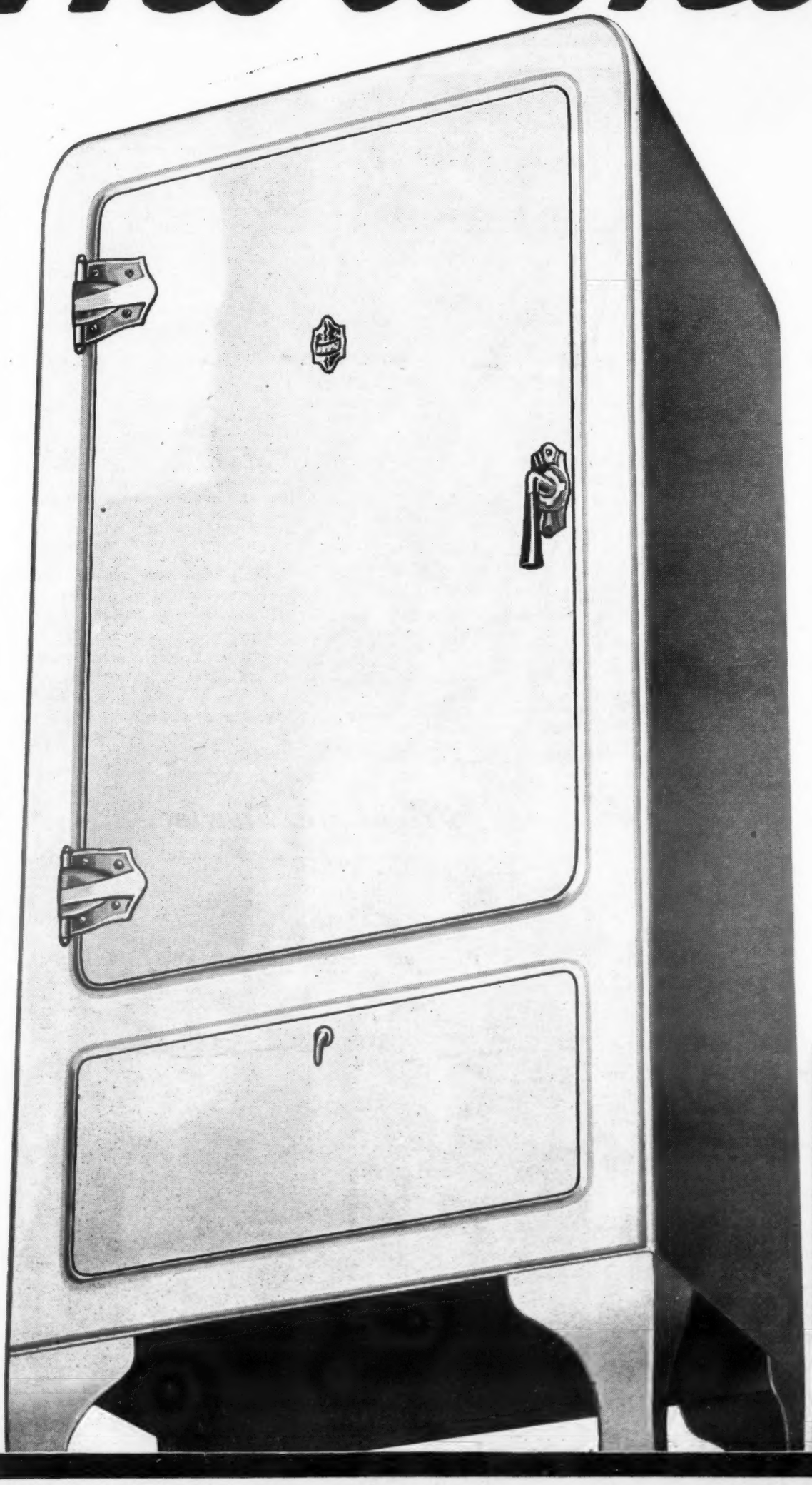
This is the *only* refrigerator that permits all servicing to be done right in the kitchen, with no fuss or muss.

•

Watch for . . .

GRUNOW'S SMASHING NATIONAL ADVERTISING!

CHICAGO, ILLINOIS



GRUNOW SAYS "Goodbye to

irritating, dangerous, corrosive, explosive and inflammable refrigerants, operating under high pressures.

For the first time a refrigerator has been developed that operates under *no pressure* . . . that uses a refrigerant with none of the characteristics listed above. This gives the Grunow Super-Safety and Super-Efficiency.

Under all average conditions the Grunow runs so little that it does not consume as much current as the average size light bulb on a twenty-four hour basis.

*** PROOF**

In Kansas City for instance, picked at random because it is a "hard-hit" market, one large dealer received his first shipment of ten Grunows on a Monday. By Wednesday they were all sold to customers! He reordered six the next day and eighteen the day following. This was accomplished by personal sales effort—right on the sales floor—not by advertising or intensive promotion of any kind. The customers looked, liked and *insisted on buying*. Name and address of this dealer will be cheerfully furnished on request. And other instances similar to this have occurred all over the country.

BY GEORGE F. TAUBENECK - - -

E. G. Biechler

Conversation with E. G. BIECHLER, president of Frigidaire Corp., was short and saccharine in the Waldorf-Astoria last Friday. Sometimes we talk at great length—that, is, Mr. Biechler talks and I listen respectfully—but this time we struck a happy climax of accord in the first moment and quit right then to make the flavor last. To dictaphone it:

"Mr. Biechler, let me congratulate you on the appearance of your new line. It's really handsome."

"Thank you, thank you, I'm glad your judgment affirms ours."

"I might add, Mr. Biechler, that in my opinion this is the first time you've had a good-looking line of refrigerators to present."

"Young man"—emphasizing his delight with a resounding whack on my right shoulder—"that's fine. That's dandy. I hope you'll print that in your paper!"

So here it is.

* * *

Hike Newell, Movie Actor

Next time we see JACK WARNER, we're going to tell him about our new film find, "HIKE" NEWELL (ever since that famous "42nd Street Special" train, me and the Warner Bros. has been just like that—note to staff artist: draw picture of two crossed fingers—yes sir-r-r-r, if your pretty secretary wants to get into the movies, just have her see me).

And if all the competitors are right who predict darkly that Frigidaire will go busted selling refrigerators at $96, Frigidaire's vice president in charge of sales (Mr. Newell) may be darned glad to get that job of leading man for CAROLE LOMBARD, BETTE DAVIS, and the other queens on the Warner Bros. lot.

Mr. Newell's second talkie is now making the rounds of Frigidaire distributorships. He's the only actor in it. The whole show, in fact. And his dark handsomeness, his engaging personality, his natural sincerity, and his empathetic voice lead us to believe that he might be another FREDERIC MARCH if he so chose.

* * *

Bit of History

From 1916 to 1921, reflects Mr. Newell, the refrigeration industry went through its experimental period. Very little competition, and only amateurish attempts at selling.

From 1922 to 1927 refrigeration was built into an honest-to-goodness industry. Chief object then was *selling the idea.* Specialty salesmanship was on the throne then, and Frigidaire recruited and trained one of the most effective specialty selling organizations in history.

Between 1927 and 1931 the industry enjoyed something of a hey-day. More and more competitors entered the picture. So did merchandising methods. Emphasis began to be placed on getting prospects into stores and showrooms.

Last year Price was dominant. Competition reached its highest point. Dozens of idle factories turned to the making of electric refrigerators.

Thus far, Mr. Newell observes, electric refrigeration has followed pretty much the same course of development as have other industries.

Today, however, there's a new set of conditions, and a new set of rules must be devised for the game. New market conditions, income standards, types of competition, and selling methods must be taken into consideration.

It's a changed world. And the refrigeration industry must change, too, if it would progress.

For the company—and the individual salesman—with new methods and new products to match the changed situation, big profits are waiting, Mr. Newell thinks.

* * *

Price Philosophy

Frigidaire's $96 base price, Mr. Newell states, is simply the logical conclusion of a system of thinking, a culmination of a plan which began to unfold a year ago.

At that time Frigidaire startled the industry with a $130 price. A few months later this quotation was pushed down to $112.

Two reasons lay behind these price reductions: (1) cleaning out a flock of new competitors by fighting with price; (2) getting to a big, new, small-income market.

First of these objectives has been rather well accomplished. Frigidairemen hope, and feel, that with their $96 price they can finish the job by the end of 1933.

Second objective remains as strong a reason for low price as ever. General Motors has an automobile for every purse; Frigidaire proposes to have an electric refrigerator for every size of income.

Last year the price was hammered down by revamping models then in production, and by slicing discounts. During 1932, however, the Frigidaire engineering department was busy *designing* an electric refrigerator which could retail for less than $100 and still yield satisfactory profits to all concerned.

In other words, instead of stripping the luxuries and refinements off a Buick, they set out to build a Chevrolet.

They got what they wanted, discounts have been upped, and everyone seems happy.

* * *

Larger Models, Larger Opportunities

Previous thinking in connection with larger models, Mr. Newell observes, has been that the market for them is necessarily restricted, and that prices should be high enough to make limited production.

Well, he smiles, working on that theory, they *got* limited production.

It's his idea to lower the prices of larger models, *increase* production, and give specialty salesmen a chance to push them. If the salesman is good, according to Mr. Newell, he should be able to "sell up," to "sell nines or better," and thus earn a good income.

Nineteen thirty-three, avers Mr. Newell, presents a better opportunity for the specialty salesman than did 1932.

* * *

The Pococks

CON EAKIN, able leader of the New York City Frigidaire branch, was too ill to attend his dealer meeting last Friday. It was neatly handled, however, by lieutenants FREDDIE SCHLAGEL and "BIG BOY" LAWRENCE (who looks like a Broadway leading man).

Messrs. Schlagel and Lawrence are two of the most efficient human machines for handling details we've ever seen. Ordinarily you wouldn't think of machines as charming; but these two young gentlemen are as likeable as they make 'em.

Star performer of the occasion was R. W. POCOCK, gray-haired orator from Frigidaire headquarters at Dayton. He tied his audience of 1,500 around his finger and—Neatest Trick of the Week—made it sit up and bark and jump through hoops.

Once we heard a pedant explain the difference between Cicero and Demonsthenes thusly:

When Cicero concluded a speech, his auditors applauded and cried: "What a marvelous oration!"

When Demosthenes finished speaking, his Athenian listeners went out to fight the Macedonians.

After Mr. Pocock leaves the stage both things happen. Men turn to each other in rapt admiration, and call him back to take bows, as they would an actor who had thrilled them. And then they go out to sell more refrigerators!

Another Pocock who is highly valuable to the Frigidaire organization is J. J. POCOCK, distributor in Philadelphia.

Mr. Pocock is an astute business operator who knows how to judge men and handle them, how to write an advertisement and read a balance sheet. He is a pillar of the Frigidaire selling organization.

Mr. Pocock was one of the most interesting men present at the New York meeting — and that includes FRANK HAWKS, who is probably the greatest flyer in America today and who graced the luncheon.

* * *

En(light)ening the Star

'Hike' Newell explains Frigidaire's lamp bulb story to Ruth Etting, star of Ziegfeld's last three Follies.

Jim Irwin and the Hollywood

While Publicity Director C. T. MUTCHNER is on a leave of absence, JIM IRWIN, his assistant, is doing the Iron Man stunt of handling all Frigidaire's publicity alone.

A few years ago Jim was known as the Boy Wonder of Newspaperdom. At the age of 20 he was managing editor of a daily newspaper in Madison, Wis. Shortly after he became old enough to vote, he was picked up by Hearst and made city editor of the Chicago *Herald and Examiner.*

His next step was to become assistant publisher of the Denver *Post.* The publisher, noted FREDERIC BONFILS, died just a few weeks ago; his death was one of the biggest news stories of the week.

When his work was finished in Denver, Jim went to the late, unlamented Detroit *Mirror,* and thence to Frigidaire. Still a very young man, Jim has been around a lot, as you can see.

His knowledge of the ropes enables him to bring such personalities as RUTH ETTING, COLONEL STOOPNAGLE & BUDD, and Herr ALBERT EINSTEIN to Frigidaire meetings.

When Jim showed the new Frigidaires to Einstein at the Waldorf-Astoria, the distinguished mathematician and propounder of the relativity theory got down on his hands and knees to inspect the unit!

That story, thanks to Jim, made the last issue of *Time.*

Jim is so strictly business (he can't utter three sentences without inserting one designed to sell you on the idea that Frigidaire is "going places") that when he suggested we go to the Hollywood restaurant for dinner one night, we were almost taken aback.

Not that he had any difficulty persuading us to go there. TED LEWIS, greatest showman of them all, is there with his band. So, too, are ELSIE ROSSI, DOROTHY CHILTON, and a couple of dozen other girls who would undoubtedly be in the "Follies," "Vanities," or "Scandals," were any of those glorifying-the-American-girl shows in existence this year.

"Where's JOE MOSS?" Jim demanded when we arrived. Joe (the manager) was produced, greeted Jim heartily, and saw to it that we got the best ringside seat in the house.

And then we discovered the catch.

"Do you know," queried Jim innocently, "that this restaurant has the finest air-conditioning system of any cabaret in America? Frigidaire, of course."

J. C. CHAMBERS, manager of Frigidaire's air-conditioning department, himself designed and supervised the installation of the equipment.

You'll probably agree that night clubs, with their perspiration-drenched air and tobacco smoke clouds, need air conditioning badly. We're going to make it a point to suggest it to the management of some we know.

When the very blonde cigarette girl came around we asked her what kind of cigars she had for sale.

"Any kind," she declared.

"I'll bet I have a brand right here in my pocket you don't have. If I win, you give me my choice of the cigars in your pack. If you win, I'll pay you a dollar for any cigar you choose to give me."

"You're on," she grinned, cockily.

So we pulled out a cigar LESTER LARKIN had given us. It stopped her completely when she picked it up and read on the band:

"100% Vertical Surface Coils."

Quoth the platinum: "Nevermore."

* * *

Lester U. Larkin

A compact man with mountainous shoulders and an all-over build like a Minnesota fullback or a light heavyweight wrestler, LESTER U. LARKIN is one of the most active and interesting figures in the refrigeration industry today.

Mr. Larkin is a native of one of our favorite cities, Atlanta, Ga. Now Atlanta is a not infrequent port of call for this department, yet we have never seen Mr. Larkin there. In Chicago, Cleveland, Atlanta City, New Orleans, Kansas City, Bloomington, New York City—yes. But never at home.

Reason is that Mr. Larkin is one of the darndest travelling salesmen you ever saw. He's president of Larkin Refrigeration Corp., which makes the 100% vertical surface cross-fin coils Mr. Larkin invented. Being president and general manager, however, doesn't prevent him from personally selling (to manufacturers and distributors) the entire output of his plant.

Effectiveness of his salesmanship may be judged by the fact that most of the country's manufacturers of commercial refrigerating machines use Larkin coils as standard equipment.

For a long time Mr. Larkin has advertised: "We will protect our patent rights." This threat has been poohpoohed by many in the industry who wondered just how he could take on, single-handed, some of the large corporations who might want to dispute those patent rights. Especially did the industry wonder when both Kelvinator and Frigidaire began manufacturing cross-fin coils.

Mr. Larkin remained quiet, instituted a few suits against smaller concerns, and trained his big salesmanship guns on the situation. Result, as published on page 1 of this issue, should be eminently satisfactory to Mr. Larkin.

His cross-fin coil patents are controlled through the Guardian Trust Co. of Cleveland by the Lawa (LArkin-WArren) Estate. Frigidaire has recognized the validity of these patents, has applied for and been granted a license to manufacture under them.

In turn, Frigidaire has sub-licensed Kelvinator Corp., and Larkin Refrigeration Corp. (manufacturing concern controlled by Mr. Larkin) to manufacture under the patents. Other manufacturers will be sub-licensed by Frigidaire in due course of time.

Not only are Mr. Larkin's most formidable competitors now allied with him, but the new set-up permits a considerable measure of price stabilization. Under the regulations licensing makes possible, cross-fin coils may now be sold entirely on quality and features, rather than price. Which is, many will agree, a happy situation for the manufacturers.

One day last week JACK SCHAEFER and the writer went down to HENRY PICHLER'S Statler hotel in Detroit to see Mr. Larkin. He had a four-room suite. While we talked with Mr. Larkin in one room of the suite, LOUIS RUTHENBURG, chairman of the refrigeration division of the N.E.M.A., waited his turn for an audience in another room. Next on the docket was Frigidaire's patent expert, RALPH FEHR. All of which may indicate what a busy, popular, and important man Mr. Larkin is.

* * *

G. S. McKee

Down at the Baldwin-Southwark Corp. of Philadelphia, G. S. McKEE, who has held important posts in many electric refrigeration manufacturing concerns, is laughing over the worried pronouncement of the technocrats.

One reason why he feels his guffaws are justified is the following passage he dug out of an official report of the United States Commissioner of Labor, issued in 1886:

"The nations of the world have overstocked themselves with machinery and manufacturing plants far in excess of the wants of production.

"The full supply of economic tools to meet the wants of nearly all branches of commerce and industry is the most important factor in the present industrial depression.

"Though the discovery of new processes of manufacture undoubtedly will continue, and this will act as an ameliorating influence, it will not leave room for marked extension such as has been witnessed during the last 50 years, or afford employment of the vast amount of capital which has been created during that period.

"The day of large profits probably is past."

'Frigidaire, Sharlee?'

Col. Lemuel Q. Stoopnagel and Budd, radio stars, sample a bottle of Frigidaire-cooled beer in the company of Hazel Grace and Helen Hugel.

Frigidaire sets new standards

A genuine Frigidaire for *$96

USES NO MORE CURRENT THAN ONE ORDINARY LAMP BULB!

Frigidaire Sets New Standards in Price—the first major manufacturer in the industry to engineer from the ground up a quality refrigerator designed and built to sell for less than $100.

Frigidaire Sets New Standards in Economy—Nothing like it known before. Think of a refrigerator that uses no more current than one ordinary lamp bulb! Here is economy that will instantly appeal to every prospect. Here is a powerful sales weapon—tuned to the times.

Frigidaire Sets New Standards in Convenience—Look at the many new conveniences in this refrigerator. Automatic defrosting that saves time and trouble. Ice trays instantly released at the touch of a finger by a new patented device. Centrally located freezing compartment. Extra room for tall containers. A compartment for frozen storage. ¼ more food space. All are features that help make sales.

Frigidaire Sets New Standards in Beauty—A new and distinctive style in cabinets. Finished in gleaming, snow-white Dulux, the finest of non-porcelain finishes, and enhanced by chromium hardware. The interior is stainless porcelain. Here's eye-appeal—the all-important "first step" in every sale.

Frigidaire Sets New Standards in Quality—As in *all* Frigidaires, this model is quality-built throughout. From top to bottom, inside and out, it has the dependability that has made Frigidaire first choice of 2,250,000 buyers—a million more than have bought any other make.

Frigidaire Sets New Standards in De Luxe All-Porcelain Models
Equally sensational are the six superb new All-Porcelain models. They represent more progress in styling, engineering, construction and value than has been made in any single year during the history of the industry.

The Super Series Frigidaire has dozens of new and exclusive convenience features such as automatic defrosting, adjustable shelves, interior light, automatic ice-tray releasing, double Hydrator capacity, greatly increased ice capacity. Its beautiful cabinet has a smartness of style that is entirely new in refrigeration. And this new beauty, new convenience, new quality and new economy is offered at far lower prices than those for which All-Porcelain Frigidaires have ever been sold before. Frigidaire Corporation, Subsidiary of General Motors Corporation, Dayton, Ohio.

*$96 *PLUS FREIGHT* *INSTALLATION AND FEDERAL TAX PAID*

Frigidaire

A GENERAL MOTORS VALUE

GROUP OF CREDITORS OPERATE COPELAND

(*Concluded from Page 1, Column 1*)

the Bohn Aluminum Co.; J. W. Baillie of the Detroit Lubricator Co.; and S. Quigley of Commercial Credit Co. J. Shurly Horwitz of the firm of Bryant, Lincoln, Miller & Bevan is the attorney representing the creditors' committee.

Immediate cause of Copeland's financial embarrassment is the Michigan bank holiday which has played havoc with business throughout the state. The national moratorium (which followed Governor Comstock's proclamation of Feb. 14) quickly ran its course and business interests in most parts of the country merely had a bad scare. In Michigan, however, every bank in the state was closed tight for four weeks and the two largest financial institutions in Detroit, the First National Bank and the Guardian National Bank of Commerce are now in the hands of conservators. So far, depositors in these banks have been able to withdraw only 10 per cent of their money.

Letter to Small Creditors

Arrangements between the Copeland officials and Detroit banks for new financing had been made only a few days before the crash. On Feb. 9, William Robert Wilson, president, sent out the following letter to small creditors:

"You may perhaps have heard that we have recently had a meeting with our larger creditors. You were not invited to this meeting for the reason that whatever arrangements may be necessary to insure the continued uninterrupted operation of our business can be made with our banks and largest suppliers.

"We are simply writing this letter to remove from your minds any doubt as to the continuation of this business which might have arisen following that meeting.

"The arrangements which are being made provide for the full payment of all accounts which, on Jan. 31, 1933, did not exceed $500.00, and also for the discounting of all bills regardless of size which shall be incurred after that date.

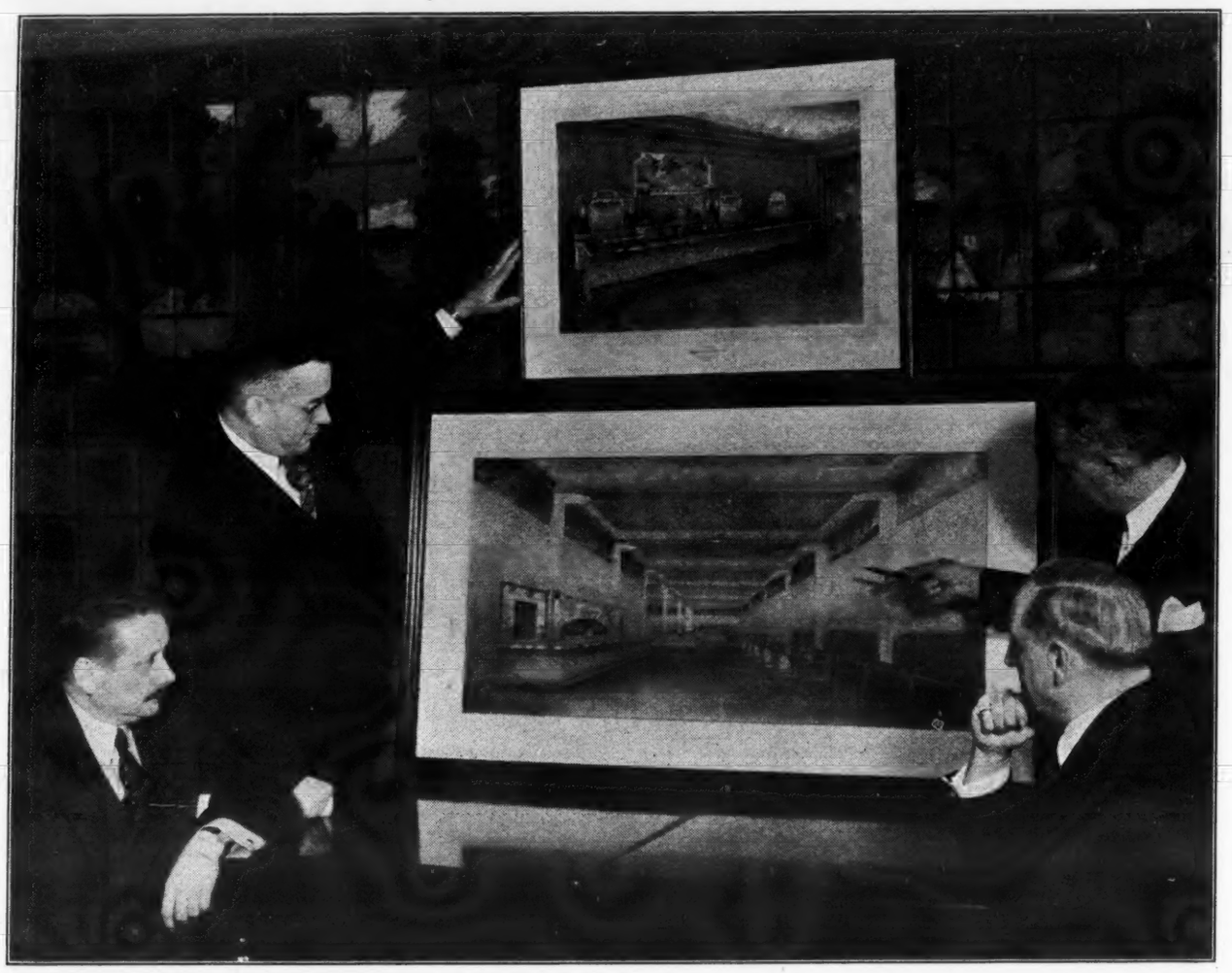
"Our banks, finance companies, and largest suppliers are cooperating with us 100 per cent and, while it may take a few days to settle some of the details, we are confident that the entire situation will work out as we have outlined it.

"For the purpose of handling the matter, the banks and other large creditors have formed an informal committee to assist us. The committee's legal representative is Mr. J. Shurly Horwitz of the firm of Bryant, Lincoln, Miller & Bevan, 2379 First National Bank building, Detroit, Mich., and if you desire any further information you may call upon him or upon the writer."

Established in 1921

The Copeland Co. was established in 1921 and for a number of years was considered one of the most important factors in the electric refrigeration industry. It has maintained a reputation for slow but steady progress. It was one of the few companies which did not over expand during the refrigeration boom years of 1924-25. During the following period when many new companies passed out of the picture and others had to undergo a drastic reorganization procedure, the Copeland plant was frequently pointed out as a model of economy and efficiency.

New Beer Gardens



Frank Miller (standing, left), Chicago sales manager, and Tully DeStefani, chief designing engineer of Liquid Carbonic Corp. (standing, right), select designs for the company's bar to be used in the Old Heidelberg Inn at Chicago's 1933 Century of Progress. The mammoth refreshment hall will be managed by the Eitel brothers, Max and Robert, who are seated in this picture.

LEWIS PREDICTS UPTURN WITHIN 90-DAY PERIOD

(*Concluded from Page 1, Column 2*)

we have had to face was our own uncertainty. Today, we know where we stand. We have faced, and are facing, the facts. And we know what to do."

Turning for a moment to discussion of national banking legislation recently put into effect, Mr. Lewis had nothing but praise for its regulations and its effect on the country's banking situation in general.

He pointed out that the new banking law, by placing an embargo on gold exports, enables our country to keep its gold to assist in reviving business activity.

Commends Plan for Conservators

He commended, too, the law's provision for bank conservators, who can work out the problems of a closed bank constructively, rather than in the condfience-wrecking way employed under many receiverships and bankruptcies.

"The new law," he said, "gives us greater flexibility in ways and means of financing a new bank. It eliminates the necessity for issuance of scrip, with its attendant difficulties. And it has made it possible for banks to liquidate some assets which they could not have liquidated previously."

Summing up these features of the new law, Mr. Lewis told the Adcrafters that until the present time, the country has been so absorbed in deploring certain unhappy phases of the current economic jolt that it has failed to see and appreciate the constructive side of such stellar legislative moves as the bank act.

One of the chief problems we have had to face during the past several years—and other countries have been confronted with it, too—has been that of constantly lowering commodity prices, said Mr. Lewis.

"As prices have dropped, more and more countries have put up protective trade barriers, have placed embargoes on money movements. Result has been that trade and commerce between countries has been more and more curtailed, which has only served to lower prices everywhere still more," he said.

Cites Examples of Business Recovery

Stating that when countries begin to resume shipments of goods to other nations, prices will begin to stiffen, Mr. Lewis enumerated several countries in which there is good indication of progress in business revival.

"England," he said, "is leading the world upward in business recovery. Germany will find a way to govern itself, and when it has, its 60 million people will resume buying and selling operations and will do much to raise price levels.

"Italy and France are now finding a common denominator for solution of their misunderstandings, and are certain to do much toward business improvement. Brazil has found ways to handle its mammoth coffee production, and is finding its way out of the business slump.

"Australia has refinanced its debts and is ready with a clean house for business. Signs of business improvement are to be seen everywhere," the Kelvinator treasurer asserted.

Return of Confidence

Repeating that with a rise in commodity prices, confidence is sure to return to the peoples of the world, Mr. Lewis injected this qualifying remark: "—if there is no joker."

Then this: "We (in the United States) have had our joker. It was the closed-bank situation. But our new banking legislation has fixed that. Now we're ready."

Before closing his 10-minute period of what he termed "thinking out loud," Mr. Lewis reminded his hearers that this business depression is not a local or a national problem, but that it is an international one.

"Business is improving," he said, "but to keep it improving constantly and substantially, we must have an international outlook on the entire situation. We must seek to tear down world-wide barriers to trade and commerce."

REX COLE TO HOLD SPRING MEETING MARCH 29

NEW YORK CITY—Rex Cole, Inc., Metropolitan New York distributor of General Electric appliances, will hold its spring sales meeting Wednesday, March 29, at the Royale Golden theater here, according to announcement made by E. H. Campbell, sales promotion manager.

WESTINGHOUSE LAUNCHES SPRING SALES CONTEST

MANSFIELD, Ohio—Westinghouse refrigerator salesmen will set out April 3 to "Turn Their Own Corner" into "Prosperity Avenue" in a special sales drive which is scheduled to last until June 10. The "Spring Showing" promotional and dealer presentation campaign will tie in with the "Turn Your Own Corner" plan.

The underlying idea behind the sales drive, according to Westinghouse refrigeration division manager, R. C. Cosgrove, is just what the name implies—that every salesman must "turn his own corner"—but the Westinghouse refrigeration division has worked out a plan that will give him every possible aid in attaining his goal.

Mailings to Salesmen

Twelve mailings, dealing in general with the campaign and specifically with better selling methods, will be made directly from headquarters to each retail salesman. Each retail salesman will be provided with a series of four educational booklets—one on demonstrations, one on prospecting, one on closing, and one on Westinghouse features.

Rewards and recognition will be given the retail salesmen who make outstanding sales records through the medium of the Quota Buster's club. Each Westinghouse district merchandise manager will give an engraved trophy to the distributor who sells the highest percentage of his quota during the campaign.

Get New Prospects

The primary purpose of the "Spring Showing" promotional campaign will be to get new prospects into Westinghouse dealer showrooms. Dealers have been directed to take the following steps to "Brush up" and prepare their showrooms:

1) Identify the store with a Neon sign; 2) brighten up the store inside and out; 3) trim showroom windows and display floor with the "Spring Showing" display materials; 4) display Westinghouse refrigerators prominently; 5) use "Spring Showing" newspaper advertising; 6) use billboard advertising; 7) conduct special "Spring Showing" celebrations; 8) use mailing invitations and hand-out folders; 9) dramatize showroom demonstrations; 10) use Quota Clincher slide films to help close sales; 11) enter retail salesmen in the "Turn Your Own Corner" plan.

Pastel Colors Used

Direct mail, billboard, and window display advertising will be done in the pastel colors of spring, with a Robin, not unlike the birds which won acclaim as part of the Pontiac outdoor poster last year, announcing the "Spring Showing." Newspaper and magazine copy will follow the same theme.

A new Neon sign for dealers has been made up especially for the spring drive. Other promotion helps are playing cards, bridge table guides, folders, envelope stuffers, imitation telegrams, and a showroom demonstration kit.

1,500 ATTEND N. Y. FRIGIDAIRE MEETING

(*Concluded from Page 1, Column 5*)

president in charge of sales for Frigidaire Corp., in the other.

Mr. Newell's picture was entitled, "A New Business," and in it he reviewed the sales history of the refrigeration industry in the effort to show that today's opportunity for salesmen is the best yet.

Other speakers on the morning program included F. R. Pierce, E. Gilbert, and R. B. Ambrose.

Mr. Gilbert, in his "New Standards for New Times," called attention to the estimate that America now has 33,000,000 persons receiving regular salaries, all of whom should be in excellent position to invest in an electric refrigerator.

With the aid of a sound picture, Mr. Gilbert presented the 1933 "super series" Frigidaire models, in 4-, 6-, 7-, 9-, and 12-cu. ft. sizes. He offered these two slogans:

"A six in the price range of a four."
"Sell nines or better."

Features of 'Super Series'

As pointed out by Mr. Gilbert, the "super series" has these sales features:

Automatic tray releasing.
Automatic defrosting.
Adjustable shelves.
Convenient hardware.
Center freezer.
Chromium-plated freezer.
Large twin hydrators.
Interior lights.
Porcelain exterior.
Cold control.
Quickube rubber trays.
Metal trays with flexible rubber grids.
Tapered grid trays.

R. B. Ambrose presented the standard line, headed by the $96 model, and told the "uses-no-more-current-than-a-60-watt-electric-light" story—waving a lighted 60-watt bulb in his hand for emphasis. He also called particular attention to the unusual condenser—which forms the back of the cabinet—on this job.

Features of the standard line are:

Dulux finish.
Automatic defrosting.
Automatic tray release.
Removable shelves.
Convenient hardware.
Center freezer.
Chromium-plated freezer.

Playlets and Pictures

A brace of playlets and another pair of sound pictures helped the afternoon pass quickly. First of the playlets, "Get the Point," drove home the idea that Frigidaire's new simplified air-conditioning estimate sheet is a business getter.

Second skit, "All Aboard," was an amusing sketch of two dealers returning in a day coach from a Frigidaire convention, and how "steamed up" they were about the new line.

Air-conditioning and commercial lines were offered for inspection. The air-conditioning market, R. W. Pocock pointed out, may be classified like this:

1. Comfort.
2. Comfort for profit.
3. Efficiency.
4. Industrial necessity.

Commercial salesmen were told to continue telling their story of savings in refrigeration cost by means of mechanical equipment, but to add to this and emphasize the story of *increased business* resulting from the installation of modern refrigeration equipment.

460 At Detroit

DETROIT—A March blizzard that piled up six inches of snow throughout central and lower Michigan proved no barrier to 460 members of the Detroit area Frigidaire sales organization who, anxious to get a glimpse of the new Frigidaire line and to hear the new sales plans, invaded the Book-Cadillac hotel here Saturday, March 25, for the meeting which officially opened sales activity on the 1933 Frigidaire line in this district.

The attendance broke previous sales meeting records for the Detroit Frigidaire branch. More than 80 of the men were from the Grand Rapids district and 60 came in from Jackson.

E. G. Biechler, president of Frigidaire Corp., and H. W. Newell, vice president in charge of sales, switched last minute plans to attend the local meeting.

Both Mr. Biechler and Mr. Newell delivered short addresses, Mr. Biechler expressing gratification at the attendance, and pointing out that the meetings this year had been attended by from 10 to 25 per cent more men than attended last year's meetings, and this in the face of the fact that dealers and salesmen were paying their own expenses.

R. F. Calloway, manager of the Detroit Frigidaire branch, presided at the meeting, and J. J. Nance, manager of the sales planning division, led the crew which made the presentation of the new line and sales plans to the dealers and salesmen. He was assisted by C. J. Allen, C. E. Quigley, F. W. Beecher, R. L. Winegarner, R. T. Potter, and H. W. Davy.

An Important Letter

To Every Man Interested in Beer Coolers

by L. F. Fedders, President, Fedders Manufacturing Company, Buffalo, N. Y.

BEER is here and Fedders is ready for it!

For several years Fedders Electrically Refrigerated Beer Coolers have been in actual use in the field. They come to you now as a complete line of perfected and proven units. They have met every test of time and actual service.

There is nothing experimental about them. We have not simply rushed into this field overnight. There are no "bugs" in Fedders Beer Coolers. They offer you the results and economies of our years of experimental, development and testing work. Patents have been applied for on each new feature developed by Fedders engineers.

Fedders Beer Coolers are available complete with high sides, but we feel that manufacturers will welcome these beer coolers for use with their own high sides. These Fedders units make it possible for manufacturers to offer their dealers a complete line of perfected beer coolers almost immediately.

They are ready in a wide range of capacity for every type of installation including,—

1. Self-contained cabinet type
2. Remote type
3. Stationary models
4. Portable models
5. Cooling coils (complete low sides) for inserting in the ice compartments of old-fashioned bars
6. Coolers for bottled beer

Until now we have delayed volume production on beer coolers because the market was restricted. However, we were all prepared and are now going ahead with production AND CAN MAKE DELIVERIES PROMPTLY.

We welcome this opportunity to work in double harness with you. You will find that this complete line of Fedders Beer Coolers gives you a short cut to the new and tremendously active market created by the coming of beer.

Your inquiries for complete specifications and information on how Fedders Beer Coolers can fit into your sales setup immediately will have our prompt and thorough attention.

Cordially yours,

L. F. Fedders

ELECTRIC REFRIGERATION NEWS

The Newspaper of the Industry

Published Every Week by

BUSINESS NEWS PUBLISHING CO.

Also publishers of REFRIGERATED FOOD NEWS (monthly) and REFRIGERATION DIRECTORY and MARKET DATA BOOK (annual)
550 Maccabees Building, Woodward Ave. and Putnam St.
Detroit, Michigan. Telephones: Columbia 4242-4243-4244

Subscription Rates:
U. S. and Possessions and countries in Pan-American Postal Union: $3.00 per year; 2 years for $5.00
Canada: $6.00 per year (U. S. Money)
All Other Countries: $5.00 per year
Advertising Rates on Request

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VOL. 8, NO. 13, SERIAL NO. 210, MARCH 29, 1933

New Opportunities

P. FRED LESLEY, general manager of Detroit's Liquid Cooler Corp., sees in national legalization of 3.2 per cent beer not only an opportunity for the electric refrigeration industry to profit from the sale of equipment but also to secure a measure of valuable publicity and good will by improving the sanitation of beer outlets with modern equipment.

In pre-prohibition days, at least part of the public's ill will toward alcoholic beverages resulted from the repulsive atmosphere of the average old time saloon. Anyone old enough to remember the stench emitted from a beer emporium (especially during the early morning hours) should be able to understand one reason for its ill repute.

Industry, Products Have Changed

During the 13 years since the passage of prohibition laws, however, a number of changes have transpired in industry and products which will now exert considerable influence on the methods used in manufacturing and selling beer.

At reasonable cost, commercial refrigeration equipment is now available for cooling draft or bottled beer without the muss which accompanied this operation when ice was used almost altogether for refrigeration. Efficient air-conditioning equipment may be purchased which will do much toward increasing patrons' comfort and improving the air cleanliness of retail outlets. Bar fixture manufacturers are offering equipment which reduces to a minimum the sloppy serving methods prevalent in the old days.

In a word, the equipment which beer retailers will find on the market as they prepare to establish and equip their dispensaries is of such a type that there will be little opportunity for opponents of beer to condemn it on sanitary grounds. With modern refrigerating and air-conditioning equipment to set a new standard it will be reasonable to expect that the tone and character of the establishment should show a like improvement. If the new beer industry fails in any degree to profit by past experience or to make proper use of the new facilities now available, it will surely cause a renewal of the old hostilities.

Credit Where Credit Is Due

Mr. Lesley points out that salesmen of commercial refrigeration, beverage coolers, and air conditioning can effectively stress the advantages of modern equipment in their sales presentations to beer retailers. And he thinks that by taking the lead in modernizing beer outlets—making them as orderly as other business establishments today—the entire electric refrigeration industry will win public commendation.

Refrigeration manufacturers are finding that beer legalization is having an effect not only on sales of commercial equipment, but on household model sales. Many domestic refrigerator prospects are asking about models which have storage capacity sufficiently large to hold a goodly number of beer bottles. In this, household salesmen see an opportunity to raise their percentage of sales of larger size models.

Frigidaire Corp. has placed the evaporator in the top-center of all its 1933 refrigerators to provide for increased bottle storage space, and it is possible that other manufacturers will see fit to design the storage compartments and shelf arrangements of their models to give larger bottle capacity.

Manufacturers of air-conditioning equipment are aware that their possibilities for sales are not confined solely to retail beer outlets, although this will probably prove to be a good market for smaller installations. Breweries, too, are in the market for air conditioning and salesmen of this equipment will find in charge of these plants men who understand and appreciate the necessity for controlled temperatures and ventilation.

Salesmen Must Be Prepared

American Blower Corp. has just completed a survey of breweries to secure material to aid its salesmen in understanding the manufacture of beer and the problems confronting brewers. In presenting this material to its men, the company pointed out that brewers are experts in their field, and will not give much consideration to air-conditioning salesmen who do not have a proper knowledge of brewery operations.

That air conditioning is needed in modern breweries is shown by the survey. It reveals that practically every step in beer manufacture requires controlled temperature and humidity. Salesmen who understand the process, and who can intelligently talk the brewmasters' language will undoubtedly have an advantage.

Manufacturers See Their Opportunity

In approximately one-half of the states, sale of beer will be legal after April 7, and salesmen are working now among brewers and retail dispensers in an endeavor to close equipment sales. But in a large number of the remaining one-half, legislation is now pending and until such legislation is passed, many prospective brewers and retailers may hesitate to proceed. With passage of favorable laws beer men will be ready to make immediate purchases of equipment. On all sides it appears that electric refrigeration manufacturers are actively aware of the possibilities offered by beer's legalization, and that they are quickly adapting their products to demands of the revived industry.

Notice

Extra copies of the March 22 issue of ELECTRIC REFRIGERATION NEWS, containing detailed specifications of 273 household refrigerators made by 35 manufacturers, are available at 10 cents per copy. Please send cash or stamps with your order.

WHAT OTHERS SAY

HALF-WAY SELLING FAILS

THE home is the most profitable market confronting the electrical industry at this time. It can be sold by working in each community to get each factor in distribution operating under a coordinated plan so that each does the work it can do best. This market cannot be sold by sitting in stores or by fooling with old sales methods. It must be contacted effectively and often and sales programs must be geared and timed to bring collective action to a sales focus.

Utilities, for example, have passed the stage wherein they did all the merchandising to a stage where many sit inert for fear of disturbing dealer or public relations by aggressive or selfish selling. Half-way merchandising is just as bad as no merchandising or selfish merchandising. Either a utility should quit merchandising on this basis or get busy on the development of coordinated community merchandising. There is no compromise. In this period the utility should take the lead in each community in developing aggressive merchandising whereby all sales outlets sell the home under a coordinated plan. Before the utility ceases merchandising, if ever, it must help develop other sales outlets.

Manufacturers, jobbers, dealers, and other sales outlets also must find the job they do best and perform their functions under a coordinated plan in each community. There must be a united front in each market area, there must be a definite and coordinated community mechanism, there must be money spent for the creation of consumer demand and the maintenance of maximum consumer contacts and there must be a community will to sell. If these policies are developed into active practices there will be profitable business for the industry.—*Electrical World*, March 4, 1933.

LETTERS

Knock-Out-Issue

Brooke, Smith & French, Inc.
Detroit
March 23, 1933.

Editor:

The other publicrats of Brooke, Smith & French, Inc.—namely Stan Tobin, Ted Chryst, Jo Lauth, and Our Girl Friday, Lillian Jones—join me in extending hearty compliments to you on the knock-out issue of ELECTRIC REFRIGERATION NEWS which you produced under date of March 22.

Being newspaper people, we get a real thrill out of journalistic enterprise—and this you and your staff certainly demonstrated in getting up the number in question. It's a knock-out—full of hot news, human interest, and crammed from cover to cover with information which should be of real value to every electric refrigerator man.

We predict that you'll receive a flood of commendatory letters on your sterling efforts.

So, swiping some of Walter Winchell's stuff, an orchid to you!

FRED L. SHAW,
Publicity director.

Classics

Williams Oil-O-Matic Heating Corp.
Bloomington, Ill.
March 17, 1933.

Editor:

Your short descriptive articles on the stars in the March 8 issue of ELECTRIC REFRIGERATION NEWS, and your covering of the inaugural parade and ceremonies stand as classics.

Apparently you have the idea (and a good one) that a trade paper can still feature the good old bread and butter fundamentals and at the same time need not reflect the lively atmosphere of a morgue. Keep up the good work.

The Sage Brush Sage appreciates the western flavor of your publication as indicated by the stories and pictures of Tom Mix. Here is one reader that is crying for more.

J. M. CULLINAN,
Editor, Williams News-O-Matic.

Swell Story

The Associated Business Papers, Inc.
295 Madison Ave., New York City
March 20, 1933.

Editor:

That was a swell G. E.-"42nd Street" story you wrote in your March 8 paper.

I always did say sports writers average the best in the business.

E. W. DAVIDSON.

Hotbed for Cutthroats

Frederick Seid
Advertising
Russ Building, San Francisco
March 8, 1933.

Editor:

The REFRIGERATION DIRECTORY and MARKET DATA BOOK arrived in good shape, as did the copies of the four consecutive weekly issues of ELECTRIC REFRIGERATION NEWS carrying your feature column.

It is all quite interesting and instructive and we are sure that it will prove very useful to us.

The Los Angeles concern has been chalking up sales totals all right; but a destructive price situation in that territory robs this example of most of its glory. Southern California is quite a hot bed for cutthroat sales tactics in a good many industries.

FREDERICK SEID.

Southeast Active

Beck & Gregg Hardware Co.
Atlanta
March 10, 1933.

Editor:

I trust that you will pardon my long delay in answering your kind letter of Jan. 13, but was awaiting the opportunity to give you some live, interesting news as to activities in our territory in electric refrigeration.

I am glad to report that dealer interest and activity in electric refrigeration in the Southeast, is moving forward rapidly and shows every indication of being even greater than last year.

In spite of the black cloud of the banking situation that has temporarily darkened the business outlook, we are pleased to report that we have signed up a number of the leading dealers in Georgia on the new Crosley Shelvador, among which are Sterchi Bros. Stores, Inc., Atlanta, Ga.—Sterchi Bros. Stores, Inc., Macon, Ga.—Sterchi Bros. Stores, Inc., Rome, Ga.—Bentley & Thompson, Augusta, Ga.—and a number of other leading accounts throughout the state.

We have been most pleasantly surprised by the volume of orders that continue to come in for our new refrigerators in spite of business conditions.

There seems to be a general opinion that our present trouble will clear up in a few days and that we will experience the greatest year in the electric refrigeration history. It is certainly encouraging to know that retail dealers are able to continue to close sales in the face of our present difficulties.

I shall endeavor to give you news of special interest from time to time, regarding our activities and local conditions in Georgia, and trust that I may have the pleasure of seeing you again personally in the near future.

HERNDON THOMAS.

Finest Trade Paper

Union Technical Agencies
Engineering and Automotive Factory Representatives
Durban, Natal, South Africa
Feb. 17, 1933.

Editor:

We have consistently, very carefully, studied specialty selling articles appearing regularly in ELECTRIC REFRIGERATION NEWS and would state, unreservedly, that we consider this publication one of the finest and most interesting of any trade publication to which we subscribe.

We subscribe to approximately 20-odd automotive and other trade publications.

You will be aware that not only do we subscribe to ELECTRIC REFRIGERATION NEWS, but we have additional subscriptions operating, whereby your publication is mailed weekly to three of our leading refrigerator distributing customers in South Africa, respectively, Messrs. Goodwin & Co., Ltd., Durban; A. R. Bradlow & Co., Ltd., Johannesburg; and Rhodesia General Electric Co., Ltd., Salisbury.

Furthermore, quite recently we instructed one of our Chicago connections to renew our own subscription for another two years from the date when the present subscription will be exhausted.

To show you what we think of your REFRIGERATION DIRECTORY and MARKET DATA BOOK, we had one of our other Chicago connections purchase from you, and instruct you to mail direct to us, six of your latest copies. We are again distributing these DIRECTORIES to our refrigerator distributors for their usage and guidance, and are ourselves absorbing all the expense in connection with these subscriptions etc., as we consider that it is a mighty good investment from our point of view.

We wish you every success in the future and trust that your weekly publication will gradually grow to even bigger dimensions and will publish more and more complete details about those firms remaining in the industry.

A. MERRY.

Tax Ruling

Treasury Department
Commissioner of Internal Revenue
Washington, D. C.
March 20, 1933.

Editor:

Reference is made to your letter dated Dec. 29, 1932, relative to the taxability of cabinets and compressors for apartment house refrigerators.

You request advice as to whether or not multiple control, apartment house refrigerator cabinets are subject to the manufacturers' excise tax when sold direct to apartment houses, architects, or builders.

You are advised that cabinets for apartment house multiple control installations are components for household type mechanical refrigerators and are properly subject to the tax imposed by section 608(b) of the Revenue Act of 1932 when sold for such use or when so used by the manufacturer thereof.

You also request advice as to whether or not large commercial compressors of ½, 1, or 1½ hp. are subject to tax when sold to apartment houses for use in operating multiple control household type refrigerators used therein.

In this connection you are advised that large compressors are taxable under section 608(b) when sold separately by a manufacturer to any person not a manufacturer or producer of refrigerators or refrigerating or cooling apparatus, if such compressors are for, or suitable for use as part of or with, multiple control household type mechanical refrigerators.

DAVID BURNET,
Commissioner.

Grunow's Cabinet Finish

Grunow Corp.
4127-4153 George St., Chicago
March 24, 1933.

Editor:

I wish to correct your published specifications on the finish made use of on Grunow refrigerators.

This finish is not lacquer, but is a synthetic resin baked on enamel. This material is applied in three coats, the first or primer coat is baked at a temperature of 325°, the second coat is baked at 260°, and the third coat at 250°.

This produces a finish which is quite similar to porcelain so far as being permanent is concerned but has the additional property of being flexible and non-chipping.

JAS. D. JORDAN,
Sales department.

TEMPRITE BUILDS 100 BEER COOLERS DAILY

(*Concluded from Page 1, Column 1*)

distributors and dealers have been selling Temprite equipment for some time past, the cooler having been approved and recommended to these outlets by their factory organizations.

Basic principle of the Temprite's operation is that of direct heat transfer from the beverage to the refrigerant, by immersion of the coil containing the beverage directly in the refrigerant.

Temperature of the beverage is maintained by regulation of the refrigerant gas pressure, the general manager explains.

In general appearance, the Temprite cooler resembles a large metal pan with vertical sides and tightly-fitted lid. Within this container is liquid refrigerant in which are immersed flat-type coils through which the beverage flows as it passes from its keg to the serving faucet.

As the warm beer enters the Temprite's coils, its heat is extracted by the liquid refrigerant surrounding the coils. This heat causes the refrigerant to evaporate, during which process a part of the cooling medium changes from liquid to a gas, which is taken back to the condensing unit to be changed to a liquid.

It is the amount of gas in the container—and the pressure which it exerts on the liquid refrigerant—which determines the amount of heat which the liquid refrigerant will remove from the beverage flowing through the coils within the cooler, Mr. Lesley explains.

A control valve is used to regulate the amount of refrigerant gas returning to the condensing unit, and to keep the gas pressure within the cooler shell constant. A liquid refrigerant control valve—an open bucket-type float—regulates the amount of liquid refrigerant returning to the cooler.

By setting these two valves at a pre-determined position, the beverage leaving the cooler will be within two degrees of the desired temperature, regardless of the temperature at which the beer enters the cooler—providing that no more than the cooler's specified hourly capacity is drawn out, the manufacturer claims.

Either sulphur dioxide or methyl chloride may be used as the refrigerant, but the position of valve adjustment for a certain temperature differs for the two refrigerants.

A feature of the Temprite equipment is its compactness and small size, Mr. Lesley points out, which enables the cooler to be located within a few inches of the tap, thus eliminating possibility of the beer's becoming several degrees warmer as it passes from the cooler to the draft arm.

Liquid Cooler recommends that an alkaline cleaning compound manufactured by Newark's Valley Chemical Co. be used for cleansing and sweetening the coils at monthly intervals, according to Mr. Leslie. This compound, he says, does not corrode or harm the coils. Sal soda compounds may also be used for cleaning.

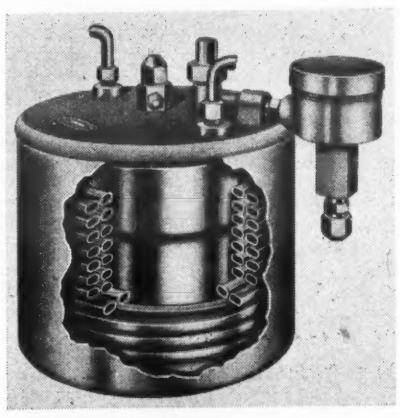
In pre-prohibition days, he explains, beer coils, cooled during "open hours" by ice, were allowed to become warm when the place of business was closed. This was responsible for the frequent souring and clogging of the pipes, with resultant necessity for weekly or bi-weekly cleaning.

When beer is kept at a constant temperature of 50° F. or less, he says, the fouling of the coils does not occur so rapidly, and it is necessary to clean the pipes only once per month.

The cleaning compound recommended by Liquid Cooler is mixed with cold water and is run through the coils. In older types of equipment, steam was generally used for cleaning purposes, but caused a flaking of sediment in the coils, with the result that the first glasses of beer drawn after the cleaning operation contained some of these flakes.

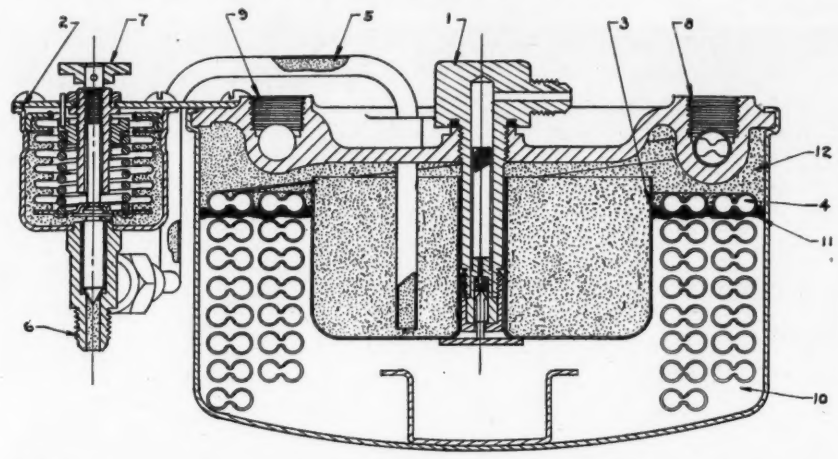
Mr. Leslie says that only 1 qt. of beverage must be run out of the Temprite coils before they are cleaned, while in most equipment of pre-Volstead days, coils were so large that approximately a gallon of beer was wasted at each cleaning.

Instantaneous Cooler



Cutaway of a Temprite unit.

A Cross-Section



This is a cross-sectional view of Liquid Cooler Corp.'s Temprite beverage cooler, described in the column at the left of this illustration. Parts illustrated are as follows: 1. Float valve. 2. Gas pressure valve. 3. Float. 4. Beverage cooling coil. 5. Suction tube. 6. Suction outlet to compressor. 7. Manual suction shut-off. 8. Cold beverage outlet. 9. Warm beverage inlet. 10. Liquid refrigerant. 11. Oil strata. 12. Refrigerant vapor.

Brewers Rebuild Plants and Plan Sale of Legalized Beer

By Elston D. Herron

When President Roosevelt signed a bill on March 22 making lawful the manufacture and sale of 3.2 per cent beer in the United States, the country's brewers, refreshed after a vacation of 13 years, began a frenzied program of plant construction and sales planning for revival of an industry legally dead since 1920.

Since late in 1932, many brewers had been hopefully renovating their properties on a relatively modest scale, but it was not until the new president had actually signed the beer bill that leading *braumeisters* were willing to make six- and seven-figure appropriations for renovizing their breweries.

Will Buy Refrigeration

Many brewers have announced the intention of installing new refrigeration equipment in their plants, and many refrigeration manufacturers are bringing out new apparatus suitable not only for use in breweries, but for beer-cooling in retail outlets. (See other stories in this issue.)

Air-conditioning manufacturers, too, see possibilities for sales to leading brewers who may see fit to equip their plants with air cooling to increase workers' efficiency and improve the quality of their product.

Several commercial refrigeration and soda fountain manufacturers are introducing electrically refrigerated beer servers.

Spends $7,000,000

St. Louis' Anheuser-Busch, Inc., is spending $7,000,000 for rehabilitating its brewing properties, and the Falstaff Corp. is preparing its plants for production.

In Milwaukee, home of the Schlitz, Pabst, and Miller breweries, preparations for beer manufacture are being speeded, while the local chamber of commerce and most citizens fill the air with joyful huzzahs.

Berghoff Brewing Corp. of Chicago has ended its status as a closed corporation, and is selling 60,000 shares of stock to secure funds for increasing its capacity and starting operations.

115 Other Brewers Busy

Early in March, approximately 115 other brewers were reported to be remodeling and re-equipping their plants for manufacture of beer, and scores of others were expected to launch similar programs as soon as beer was officially legalized. In New York alone, $14,000,000 is being spent for remodeling and re-equipping breweries.

Rebuilding and renovating programs, however, are the least of the brewers' worries, according to reports. Sales problems are uppermost in their minds at present.

It was their opinion that with the return of legal beer, bootleg brewers and retailers would promptly fade out of the picture and leave the road clear for the old-timers.

Have Own Brand Names

But indications are that such is not the case. Operators who have been illegally supplying brew to the public for the past few years have, in some localities, openly announced their intention of manufacturing and selling beer under their own brand names.

It is probable that brewers who suspended business with passage of the prohibition laws and are now resuming their activities will attempt to have license laws passed making it impossible for brewers and retailers who have been operating illegally to secure licenses.

Advertising authorities expect that brewers will use much white space in cooperative advertising during the next few months in an effort to establish good will for products of pre-prohibition operations, and to remove any doubts about their products' quality which may result from rumors passed out by speakeasy proprietors who are attempting to insure now that their volume of business will not decrease with resumption of legal sale of beer.

At the present time, 23 states will permit manufacture and sale of beer on April 7, with the federal government protecting those states where law prohibits the beverage's manufacture and sale. Most estimates set the price of draft beer to be sold under the new law at 10 cents per glass.

SALESMEN LEARN TO SELL BEER COOLERS

(*Concluded from Page 1, Column 2*)

age coolers separately or combined with Kelvinator refrigeration equipment. Dealers and distributors will secure Temprite coolers through the Kelvinator factory.

Under terms of another agreement between Kelvinator Corp. and the Brunswick-Balke-Collender Co., bar equipment manufacturer in Muskegon, Mich., Kelvinator refrigeration units will be used to a large extent in counter cooler workboard units sold by the Brunswick organization as self-contained assemblies, says A. H. Reinach, manager of Kelvinator's national business department.

Kelvinator Corp. is now marketing among proprietors of retail beer outlets an immersion type bottle cooler. The company will soon place on the market a dry type bottle cooler designed especially for bottled beer.

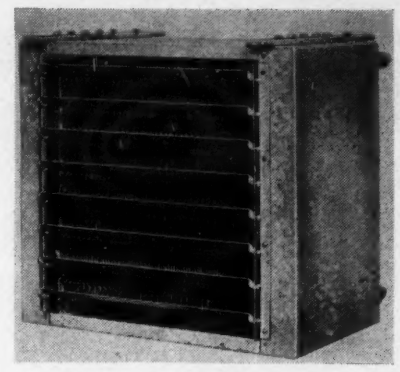
Just placed in production at the Kelvinator factory are two new types of commercial coils. First of the new coils is of the continuous fin type and has continuous fins and tubing, both of which are made of copper. A metal bond is used between the tubes and fins, according to Paul Parker, Kelvinator engineer.

Features of this coil are its increased heat conductivity, more nearly uniform distribution of heat to all parts of the unit, elimination of soldered joints, and large-area contact between the fins and tubing.

Humidity control and increased cooling capacity made possible by use of a motor-driven fan are the features claimed for the new forced convection cooling units.

Both of these new types of coils are adaptable for use in large walk-in refrigerators in which kegs of beer are stored before being moved to the bar, Kelvinator engineers explain.

Kelvinator Unit



Forced convection coil.

FILTRINE CO. ANNOUNCES CABINET BEER COOLER

BROOKLYN—Filtrine Mfg. Co. here is introducing a new all-porcelain cabinet beer cooler having a draft capacity of 15 gals. per hr., reducing the beer from 55° to 40° F., according to C. F. Hansel, president. It is designed for a ½- or ⅓-hp. remotely installed refrigerating machine, and cools both water and beer.

Upper compartment of the unit contains space for 30 gals. of sweet water in which is submerged 160 ft. of block tin beer coil, 75 ft. of dehydrated copper tubing, and American Radiator expansion valve, and 24 ft. of block tin water coil. Lower compartment is designed for dry storage space.

Insulation used is 2-in. Armstrong corkboard. The cabinet may be inserted in a conventional bar, or may be used as an individual unit, says Mr. Hansel. He points out that live steam may be used for cleaning the beer coils, as they do not directly contact the refrigerant tubing.

Modern Design Marks New Bar Equipment

Pictured at the left is a new bar and backbar manufactured by the Brunswick-Balke-Collender Co. of Muskegon, Mich., and equipped with a Temprite cooler. In the center is one of Esco Cabinet Co.'s two new electrically refrigerated bottle coolers, see page 1. Right, a rear view of a self-contained Brunswick-Balke-Collender counter cooler, workboard unit, see column 2 below.

APPEARANCE OF BAR FIXTURES IMPROVED

CHICAGO—When the first post-prohibition customer steps up to the modern bar with his legal right to ask for a glass of beer, he will see before him a piece of equipment greatly improved in appearance and efficiency over its predecessor 13 years back, according to designing engineers of Liquid Carbonic Corp. and Brunswick-Balke-Collender Co., two large manufacturers which have re-entered the fleld of beer-dispensing equipment.

No Brass Rails

If this customer's foot starts to feel for the old familiar brass rail, he may possibly grope in vain, Liquid Carbonic men say, for the new bars will have a wide marble step instead of the foot rail. Marble or synthetic materials will comprise the front and sides of the new bar, and the top may be of Bakelite instead of mahogany.

The back bar will be just as unfamiliar, it is believed, with more marble, less mirror surface, and fewer corners and crevices to serve as resting places for placards.

Atmosphere Changed

Not only the equipment, but also the atmosphere surrounding it will be vastly improved, according to predictions of the Liquid Carbonic officials.

Instead of being hidden away from public view, the bar will be in plain sight. This follows the continental idea of bringing liquor service out into the light of day, away from the intoxication which the old back-room doors frequently hid.

To the coming beer dispenser, the most important technical development of the past few years is the improved reliability of automatic refrigerating machines, Brunswick-Balke-Collender engineers declare.

Constant Temperatures

In pre-Volstead days, beer cooling depended entirely on ice, and the regulation of serving temperatures was dependent on the maintenance of ice in the beer coils. Not infrequently the porter in a beer-serving establishment neglected to furnish enough ice, or made a poor guess as to the anticipated ice consumption, with the result that irregular temperatures affected the taste of the beverage.

With the advent of dependable automatic refrigeration, constant temperatures are easily obtained, and improved quality and taste of the beer served is expected by Brunswick technicians. The new system uses a dry expansion compartment to pre-cool the beer during the storage in barrels, and an instantaneous cooling coil just before the tap to produce the proper serving temperature.

Brunswick Brings Out New Line Of Counters

(Concluded from Page 1, Column 4)

week. More than 1,500 workmen have been called into the Muskegon factory.

The new counter cooler is being built in 10-, 12-, 14-, and 16-ft. lengths. It has a storage space for bottled goods, two sections for cooling two half-barrels each, a Temprite cooling unit for serving the draft beer, a ⅓-hp. air-cooled refrigerating machine, and a workboard for cleaning glasses.

A No. 10 Temprite cooler installed in the bar with one faucet has a drawing capacity of eight gallons of beer per hour, with the temperature reduced from 55° to 40° F., Brunswick engineers state. Or a Temprite No. 30-B-2 tap cooler can be provided, with a capacity of 15 gallons per hour on each of two faucets, giving the same temperature reduction on each of two faucets. This second arrangement permits a beer-serving establishment to offer both light and dark beer.

A price of $470, f.o.b. Muskegon, has been established for the 12-ft. counter cooler workboard unit with one section for bottled goods and two sections for half-barrels. This includes the air-cooled condensing unit, tap cooler with one faucet, drip plate, etc. Fixtures and installation costs are extra.

The bar counter has a black Prestwood top, and a 6-in. black Prestwood base. The standard back counter is of birch with an ebony finished top and a 6-in. black Prestwood base. The top frame of the back counter is of birdseye maple with walnut panels, green gold and black ornamentations, and an inset pack panel mirror equipped with a recessed electric light fixture.

Without the counter-cooler workboard, a 12-ft. counter, back counter, and top frame sell for $360 f.o.b. Muskegon. The same fixture in a 16-ft. size will sell at $485, f.o.b. Muskegon.

This equipment will be distributed through factory branches located in key cities.

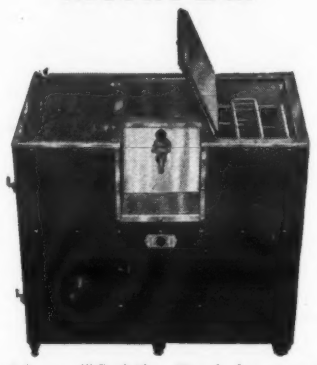
FEDDERS DEVELOPS COOLERS, DISPENSERS

(Concluded from Page 1, Column 5)

and cabinet models provide cooling capacities from 8 to 33 gallons per hour, according to the size of the cooling coils and the horsepower of the compressor unit. For greater temperature drop, capacities are in proportion, Fedders engineers explain.

For use where portability is desirable, the Fedders "Mobile Bar" has been designed as a self-contained electric beer-cooling unit, mounted on easy-rolling casters. It has its own compressor unit and has a compartment for the keg.

Mobile Bar



Fedders 'Mobile Bar' is a self-contained electrically refrigerated cooler for bulk or bottled goods.

The keg is connected to the refrigerating coil by a quick-acting tap and rubber hose. Air pressure, supplied by a motor-driven compressor on the half-barrel model, and a quick-acting hand-operated air pump on the quarter-barrel model, forces the beer from the keg to the cooling coil and then to the faucet.

A special compartment is also provided for cooling bottled goods. The bottle compartment holds 18 qts. or a larger number of pints standing upright, and in direct contact with the refrigerating element. The Fedders "Mobile Bar" is made in half-barrel and quarter-barrel sizes. There is also a Fedders 'Mobile Cooler" for cooling bottled goods only.

A counter display cooler and dispenser for barrelled beer or carbonated beverages in high pressure tanks, is also offered in a cabinet designed to be set on top of a store counter. The top is built to accommodate advertising displays such as the Scene-in-Action device, or revolving and illuminated signs. The condensing unit for this model is installed remotely.

FRIGIDAIRE SIMPLIFIES CLEANING OF BEER COILS

(Concluded from Page 1, Column 3)

and then cool the beer coil down to a satisfactory temperature. With the new Frigidaire coolers, according to the company's announcement, the steaming out operation becomes a 10-minute operation.

It is only necessary to shut off the supply of brew at the keg and open the draft arm at the spigot. The steam hose then is connected to the steam cock at a tee located near the keg, and live steam is forced through the system. The steam then may be shut off, the hose removed, the steam cock closed, the beer supply line reopened, and the system is ready to function with cool beer available in three minutes.

Keg and contents should be precooled and stored in a suitably refrigerated box, which may be located in the bar or some other convenient and accessible location, Frigidaire engineers state.

LIQUID CARBONIC USES MARBLE FINISH ON BARS

CHICAGO—Finished in marble and Lichrome metal trim, a full line of electrically refrigerated bars and backbars for dispensing beer is being introduced by branches of the Liquid Carbonic Corp., according to R. H. Crane of the home office here. Remote installations of Frigidaire condensing units and Zahm beverage coolers are used to provide refrigeration for the new Liquid Carbonic bars.

Cruse Starts to Build Bar Fixtures

LOUISVILLE, Ky.—Cruse Refrigerator Co., manufacturer of commercial refrigerators, has started to manufacture bar fixtures and beer storage refrigerators, according to W. C. Cruse, Jr., treasurer.

SHIPLEY FORECASTS SALES OF $40,000,000

(Concluded from Page 1, Column 3)

mation there are at present 131 plants licensed for beverage production. These are equipped with 302 refrigerating machines having refrigerating capacity equivalent to the melting of 30,000 tons of ice daily.

"As most of the brewing plants have been dismantled since 1914 and the equipment scrapped or sold for other uses, the refrigerating machinery will have to be replaced before these plants can resume operation. This replacement will be carried out over the next three to five years it is estimated."

In addition to the immediate stimulation of the business of the refrigeration industry the return of beer means the return of a valuable customer to the industry, Mr. Shipley said. Before prohibition the breweries of the country bought on an average of $6,000,000 of refrigerating machinery a year.

With distilled liquers still prohibited it is conceivable that the demands of the brewing industry may far exceed those of pre-prohibition days, Mr. Shipley concluded.

Consolidated Has New Line of Beer Coolers

(Concluded from Page 1, Column 4)

have double seals on the doors, and are cooled by direct expansion.

The new Consolidated beer coolers are constructed so that each model can be used in conjunction with any other model by butting the cabinets together. Combination draft and bottle dispensing facilities are also provided in one cabinet in the line.

All coolers are insulated with 2 in. of Armstrong's L-K corkboard, and are built in welded angle-iron frames. They are equipped with adjustable legs to permit use with bars and counters of varying heights. Each cooler is furnished with drains and flushing facilities.

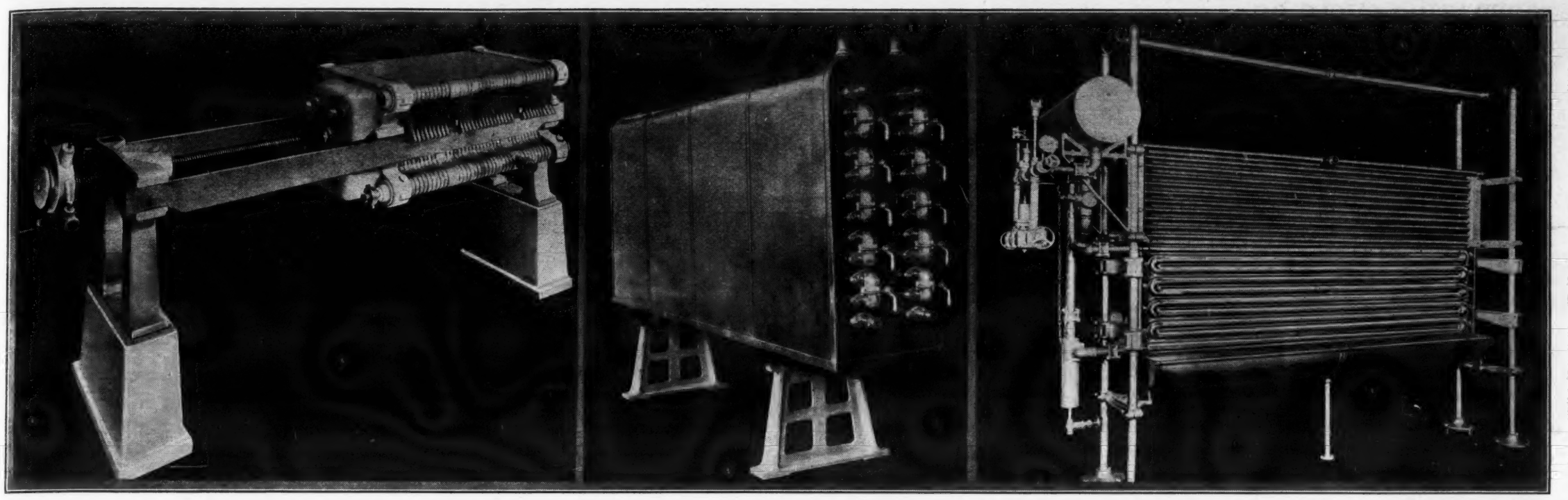
Air-Conditioning Firm Formed in St. Louis

ST. LOUIS — Myers Engineering Equipment Co., a new firm specializing in the installation of air-conditioning apparatus, has just been organized by George Myers.

New Portable and Stationary Bars, Electrically Refrigerated

Here (at the left) is the new "Port-A-Bar" manufactured by Chicago's M. Leitner & Co. It is electrically refrigerated by an air-cooled system below the drain board, and can be moved at will. Shown at the right is one of Liquid Carbonic Corp.'s new marble and Lichrome metal bars. It uses Frigidaire refrigeration, remotely installed.

York Introduces Three Wort Coolers for Use in Breweries



At the left is York Ice Machinery Corp.'s plate type heat exchanger for pasteurizing or cooling. In the center is its new internal tube cooling unit, and at the right—the surface cooler.

SIMMONS DESCRIBES BREWING PROCESSES

(Concluded from Page 1, Column 2)

F. Equipment for regulating humidity is required also.

"In hop storage rooms a fairly high humidity is desirable. Temperatures should be between 32° and 40° F. Temperature in stock rooms should be held between 31° and 36° F. A temperature of 35° is desirable in racking-off, bottling, and shipping rooms," he explains.

Salesmen who plan to go after brewery business should have a practical knowledge of brewing, and should bear in mind that brewing is under the direction of brewmasters who have very definite and widely divergent ideas as to what constitutes good practice, says Mr. Simmons.

Explains Process

In pointing out what information a salesman should have about beer manufacture, the American Blower man explains the brewing process in this way:

"Beer is an effervescent beverage resulting from the fermentation in water of a substance extracted from hops and various cereals, chiefly barley malt. Malting of the grain and the brewing of beer generally are conducted by different companies.

"In the brewery proper the malt from storage is cleaned and crushed, mixed with warm water, brought to the boiling point and then mixed with cooked rice or corn mash.

"The mixture is held for a time at a temperature below boiling. Then, by straining and washing, the resulting liquid extract, called wort, is removed. This wort, boiled with the flowers of the hop plant, is the basis for beer."

After boiling, the hopped wort is filtered, and the sediment is allowed to settle, Mr. Simmons explains. It is then cooled to a temperature of 48° F. in a Baudelot cooler or similar apparatus. Yeast is added to the cooled wort, and the wort goes to the fermenting cellars.

Fermentation Period Varies

The fermentation period varies from four to five days for common beer and eight to sixteen days for lager beer. This time is partially controlled by the type of yeast used and the strength of the wort, but chiefly by the temperature maintained in the fermentation rooms.

When fermentation has reached the desired point, he says, the beer normally is further cooled to 31° to 36° F. and transferred to the stock cellars to age and to be freed from all solids by the process of "settling."

"When matured," he continues, "the beer is pumped through casks filled with oak chips, filtered, and treated with isinglass to make the brew clear and brilliant.

"The beer at this point is a dead flat liquid. The form which is considered a prime requisite of good beer is given either by the addition of carbonic acid gas under pressure when the beer is bottled, or barrelled, or by the addition of 'kraeusen,' or young fermenting beer, which sets up a secondary fermentation and develops gas pressure. If 'kraeusen' is used, it is added before the isinglass.

"Brewing is an old profession, and naturally the methods are varied," he says. "Practically every brewery will depart in some detail from the above practice.

"In the old days little attention was paid to the comfort of workers in a brewery, but it is quite probable that our advanced standards of working conditions will produce many opportunities for air conditioning from a comfort angle," believes Mr. Simmons.

Cherry-Burrell Installs Wort Coolers

CHICAGO — Cherry-Burrell Corp., supplier of dairy manufacturing equipment, has placed a number of cabinet-type tubular coolers in breweries reopening for the manufacture of beer.

This type of cooler is used in the preliminary cooling of the wort, from a temperature of about 185° F. to 57° F. with sweet water at 55° F. as the cooling medium. Most large breweries have their own wells which supply water for this purpose, but city water is also used.

The wort is finally cooled to 43° or 45° F. by direct expansion or brine surface coolers, but it would be uneconomical to use either of these two refrigerating mediums to do the preliminary cooling, Cherry-Burrell engineers state.

The cabinet cooler which Cherry-Burrell is supplying to breweries, and which has been used by the dairy industry since 1930, is of the tubular type, with each tier containing three sections of 12 1-in. tubes, the tier being 4 ft. in length. There are nine tiers or cooling units in each cabinet, making for a nominal capacity of 16,000 lbs. of beer per hour.

The wort enters the cabinet cooler through one main header, flows over the units in a thin film, and is carried to the other surface coolers or vats through a single outlet.

Principal advantages of the cabinet cooler over the ordinary surface-type cooler as enumerated by Cherry-Burrell engineers are the saving in plant space made possible by the smaller cabinet cooler and the good heat transfer efficiency of the latter.

The cabinet cooler, with its 1-in. tubes, will bring the temperature of the wort down to 57° F., or within 2° F. of the temperature of the cooling medium, while the surface cooler, with 2-in. tubes, will cool the product down to 67° F. or only within 12° F. of the cooling medium temperature.

Where feasible, the entire cooling job may be done with the cabinet cooler, as it is so designed that the bottom sections may carry brine and thus do the complete cooling job. A 2-in. standard iron pipe thread inlet and also an outlet is provided at one end of the cabinet cooler for each of the three sections, so that either one-third, two-thirds or all of the cooler may be used with water or brine, depending upon what combination is best suited to the product to be cooled.

In cleaning, the units are pulled out, away from the center or fixed unit on tracks, provided for this purpose. There is room for a man to stand between the units and wash them.

The units comprising the cabinet cooler, when in operation, are drawn tightly together by stainless steel clamp bolts, each unit and section being sealed against possible leakage by the use of paper gasket seals which are replaced after each day's run.

Carrier Centrifugal Unit Proposed for Brewery Use

NEWARK — Carrier Engineering Corp. is recommending its centrifugal refrigerating machine for brewery installations. This type of Carrier refrigerating machine is available in sizes up to 500 hp.

Carrier engineers are also specifying the Carrier cold-diffusing system, in which fans diffuse cooled air through directional outlets to all parts of the storage rooms, for fermenting rooms, beer cellars, and hop storages.

SURFACE & INTERNAL TUBE COOLERS ARE INTRODUCED

YORK, Pa.—Three new wort coolers are being introduced by the York Ice Machinery Corp. for sale to brewers, according to F. J. Stauffer of the sales promotion division.

First unit is a plate-type heat exchanger, for cooling or pasteurizing. It is an assembly of smooth, thin spacer plates and cast plates upon both sides of which are machined a series of parallel grooves.

Arranged alternately, the plates, when pressed together, form a series of short rectangular passes on both sides of each plate which provide for the flow of the wort, and for the heating or cooling medium on opposite sides of the plate throughout the entire assembly, says Mr. Stauffer.

Counter current flow, and the fact that all fluids are brought into intimate contact with the heat transfer surfaces account for a good rate of heat transfer in this unit, he explains.

A feature of York's new internal tube cooler is its small cooling surface. In operation, it places the wort and refrigerant under pressure with high velocities.

One of the units is a surface cooler, and can be used with either brine or ammonia as the cooling medium, water sections being provided as required.

ELECTROLUX ENGINEER DESCRIBES AIR-COOLED SYSTEM

OPERATING CYCLE OF MACHINE EXPLAINED

By W. R. Hainsworth
Director of Electrolux Laboratories

For many years after the first successful Carre unit was installed, the absorption machine assumed an important role in the field of commercial refrigeration. Then the compression unit with its greater flexibility appeared, sponsored by improved steam engines and an ever-widening application of electricity. Competition became too great and the commercial absorption machine passed through its zenith and started descending.

However, early in the last decade new possibilities in this field were presented by Geppert, Altenkirch, and Platen and Munters. The latter pair invented the Electrolux constant-pressure unit, and with subsequent improvements the water-cooled absorption machine returned as an important factor in the refrigeration industry, this time in the household field, with the result that more than 300,000 units have been installed.

Water-Cooled Machines

Regardless of this, it has been stated by some that the water required for cooling purposes constitutes a decidedly limiting handicap, and that the practical air cooling of the absorption machine necessary to extend the market cannot be attained. Therefore continued expansion in the household field and extension to other fields, it is argued, is not possible.

As a matter of fact, increased improvements planned for the water-cooled unit, when properly assembled, increased the efficiency of the unit to such an extent that air cooling became not only possible, but highly practical. The result is that the air-cooled household unit has been placed on the market, and the extension to other fields is contemplated.

Reviews Improvements

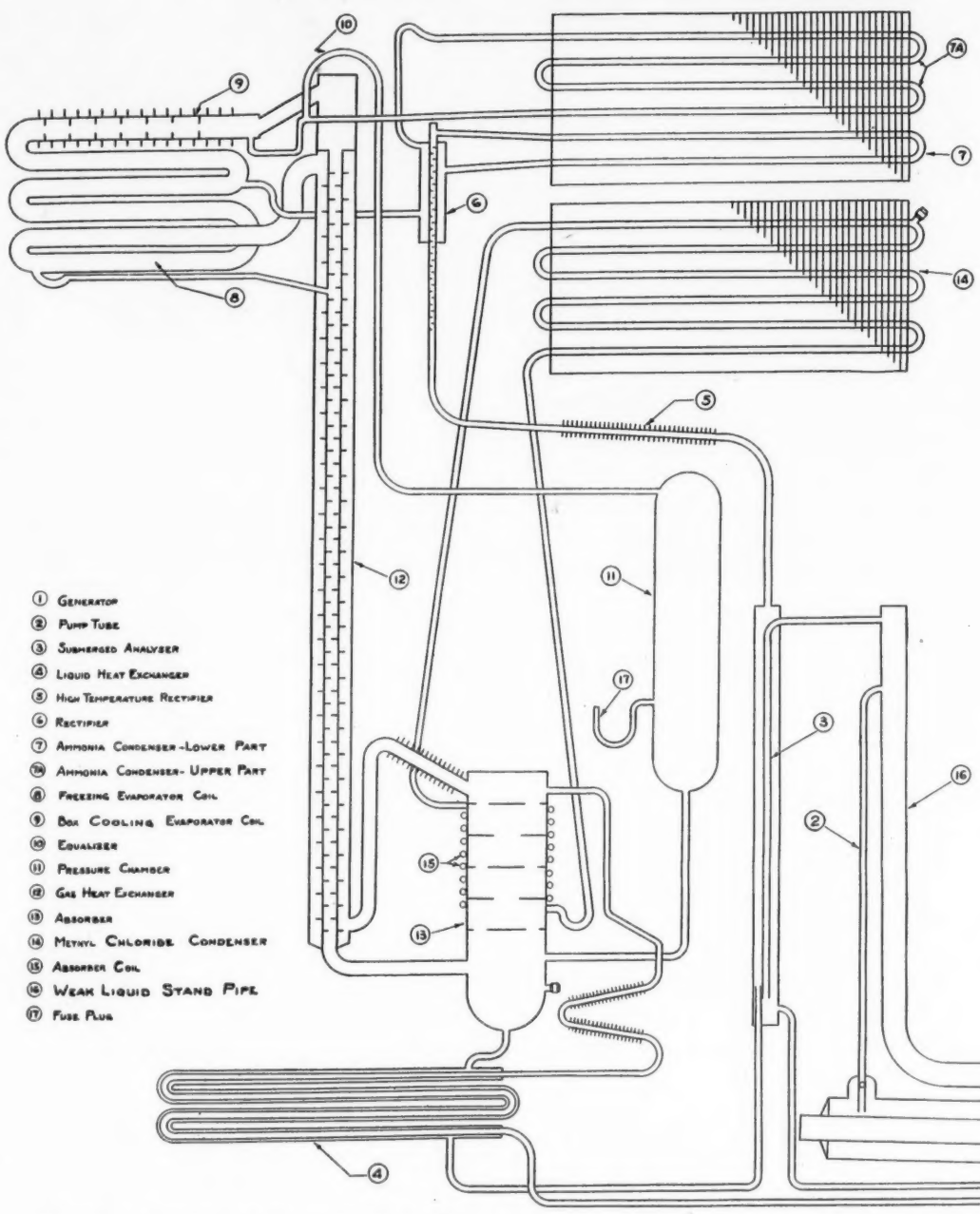
Let us review some of the essential improvements which make air cooling possible. It will be recalled that the Electrolux unit contains hydrogen gas, which acts as a total pressure equalizer, permitting a low partial pressure of the refrigerant in the evaporator, and a condensing pressure in the condenser, without the use of valves or constrictions in the system.

It also serves the purpose of transporting the refrigerant gas from the evaporator to the absorber. The quantity of inert gas circulated is relatively large, and must be successively warmed and cooled in its passage between the evaporator and absorber.

For this reason it was apparent that the efficiency of the unit could be increased if the inert gas could be made to transport a greater quantity of refrigerant each time it traveled around the circuit.

This was accomplished by employing a two-temperature evaporator, the upper or higher-temperature section serving principally to cool the cabinet, and the low-temperature section to produce ice cubes.

Plan of the New Electrolux



This is a diagram of the new Electrolux air-cooled refrigeration system described in detail on this page.

Picks Up More Ammonia

With this arrangement, the inert gas, which is saturated with ammonia as it leaves the low-temperature section, is capable of picking up considerably more ammonia as it passes through the high-temperature section, thus producing refrigeration for cabinet cooling without requiring additional inert gas circulation.

The arrangement also permits precooling of the warm liquid ammonia from the condenser before it enters the freezing section of the evaporator. Another improvement which served to increase the efficiency of the unit was obtained through the use of an improved analyzer.

In this analyzer, hot gases from the boiler are used to liberate ammonia from solution before it enters the boiler.

These features, together with improvements in the design of the absorber and gas heat exchanger, resulted in such an increase in efficiency of the unit, that it became practical to use air-cooling with condenser temperatures as high as 140° F., in contrast to a condenser temperature of 95° to 105° F., in the water-cooled unit. At the same time, the increase in efficiency obtained resulted in a gas consumption or energy input to the boiler even lower than for the water-cooled units.

Charging Pressure

In addition to the problem of increasing the efficiency, the development of the air-cooled unit involved the question of the charging pressure. The initial hydrogen charge in the water-cooled units is at a sufficiently high pressure to permit condensation of ammonia with condenser temperatures in the neighborhood of 100° F.

To conserve water, a control is used which continuously maintains the outlet cooling water at approximately this temperature. Obviously this is not a factor in the air-cooled unit, and it was thought that if some means could be found for automatically adjusting the internal pressure in response to room temperature changes, it would be possible to charge and operate the unit at a pressure considerably lower than that required for operation under extreme conditions.

Increase in Efficiency

Also, a further increase in efficiency at normal room temperature would result. This was accomplished by placing a hydrogen reservoir chamber in the equalizer pipe between the condenser and absorber.

Hydrogen which is stored in this chamber under normal room temperature conditions is displaced by ammonia gas from the condenser when the room temperature rises to the point where the gas will not condense. The ammonia gas passes through the condenser into the hydrogen reservoir, because the pressure in the system is not high enough to cause condensation.

Hydrogen Compressed

The displaced hydrogen is thereby compressed into a smaller volume in the rest of the system, and the total pressure in the system is automatically increased to a point where condensation of ammonia in the condenser occurs. As the room temperature becomes lower, hydrogen returns to the reservoir, and the pressure in the unit decreases, thereby automatically producing the desired pressure change.

Furthermore, in designing the air-cooled units it was desired that they fit into cabinets of essentially the same dimensions as those selected for the water-cooled units. Under these conditions, it appeared that the most desirable location of the cooling surfaces would be at the back of the cabinet.

Must Be Highest Section

The ammonia condenser must necessarily be the highest section so that the condensate will drain into the evaporator. Since it was desired that a two-temperature evaporator be used, a further advantage appeared possible by draining the first part of the condenser to the lower-evaporator section, and the remainder to the upper, or box-cooling, section.

In a cold room, all the gas condenses in the first part of the condenser, and only the freezing section of the evaporator receives ammonia. Since the box-cooling fins of the upper evaporator are not receiving ammonia, there is less danger of producing too cold a cabinet in a cold room.

As the room temperature increases, a greater portion of the condenser comes into use because of the increased load, and a part of the liquid ammonia then drains to the upper-evaporator section to produce the more efficient cabinet cooling needed at the higher room temperature.

After considerable experimentation with the surfaces for cooling the condenser and absorber located at various places, it was finally determined that the best results were obtained by placing them one above the other and leaving a space between the cooling surfaces and the back of the cabinet proper, for the purpose of creating a chimney or natural draft, to augment the dissipation of heat from the surfaces.

Methyl Chloride Circuit

Since it was desired that the cylindrical-shaped absorber used on the water-cooled units be retained, a separate secondary circuit containing a small quantity of methyl chloride was added to transfer the heat of absorption from the absorber shell to the absorber cooling surface.

With the above general explanation in mind, the reasons for employing the circuits shown in the diagram may be readily understood. Hot ammonia vapors containing a small quantity of water are expelled from the boiler (1) by heating the solution. The heat in the vapors is partially recovered in the submersion analyzer (3) by bubbling the vapors through the strong ammonia solution before the latter enters the boiler.

At this point heat which would otherwise be dissipated in the rectifier serves the useful purpose of liberating some ammonia from solution. The vapors then pass through the rectifiers (5) and (6) to the lower part of the ammonia condenser (7). The condensate which forms then flows to the lower, or freezing section of the evaporator (8).

In case all the ammonia vapor is not condensed in the lower part, it passes to the upper condenser (7a). If the pressure in the system is high enough, the remainder of the vapor condenses and drains to the upper or box cooling part of the evaporator (9).

In case the room temperature is very high or the cabinet is otherwise subjected to a heavy load, the pressure may not be high enough to effect condensation, in which case the ammonia vapors pass through the equalizer pipe (10) to the hydrogen pressure reservoir (11).

Condensation of Ammonia

Hydrogen is forced into the absorber, and the pressure in the unit increases, as previously explained, until condensation of the ammonia vapors occurs. The ammonia in the evaporator then vaporizes into the hydrogen to produce the refrigerating effect.

The resultant mixture, which is rich in ammonia, is heavier than the mixture of gases leaving the absorber (13), and the difference in gravity of the two columns in the gas heat exchanger (12) causes circulation in the desired direction. This occurs even though the path of the heavy mixture is upward through the evaporator.

Action in Absorber

In the absorber, the weak solution from the boiler absorbs ammonia from the gas mixture. The heat liberated passes to the coils (15) containing liquid methyl chloride, which are wrapped around the absorber. The methyl vaporizes and flows to the methyl condenser (14), from which the heat is dissipated to the air.

The strong solution from the absorber is pre-heated by the weak solution passing through the liquid heat exchanger (4), and then enters the analyzer and boiler, thus completing the circuit.

Thermostat Control

The control consists simply of a thermostat operating from the lower evaporator temperature to regulate the gas supplied to the unit. For convenience to the customer, the controlling knob is placed on the evaporator shield in the cabinet and a defrosting position is provided.

The gas flow is regulated between a fixed minimum and fixed maximum. The defrosting position corresponds to the minimum flow, which in turn is selected to provide sufficient refrigeration to maintain cabinet temperatures during the defrosting period.

The burner, which is essentially the same as that used on the water-cooled units, includes a safety cut-off which turns off the gas in case the flame is extinguished. The only other accessory is a small gas filter.

Five models based on the above design have been placed on the market. The general specifications are as follows:

Unit	Cabinet	Gross Vol. Cu. Ft.	Net Vol. Cu. Ft.	Shelf Area Sq. Ft.	No. of Cubes	Lbs. of Ice
AG-40	ED-30	4.2	3.2	6.7	36	4 lbs. 8½ oz.
AG-40	ED-40	4.6	3.7	8.0	49	4 lbs. 8½ oz.
AG-50	ED-50	5.5	4.5	9.0	48	5 lbs. 3 oz.
AG-70	ED-60	6.2	5.0	9.9	60	6 lbs. 8 oz.
AG-70	ED-70	8.0	6.6	12.2	60	6 lbs. 8 oz.

In a room temperature of 100° F., the units maintain average cabinet temperatures below 45° F., and single depth trays are frozen between meals. Uniformity of production is obtained by calorimetric testing of all production units in a 100° F. room.

In a normal apartment installation, the cabinet may be confined at the sides, as the cooling air flows under the cabinet and up the back, which is covered with grille work to permit easy access of air. Shelves may be placed five or six inches above the cabinet without materially affecting the performance. The installation is simple, as it requires only a ¼-in. copper tube from the gas supply to the cabinet.

Development of Staff

In closing this brief description of the new air-cooled Electrolux, it would probably make interesting reading and add a touch of engineering romance to the picture to say that the new unit is a wonderful new invention, brilliantly conceived on a Saturday night in June. Such is not the case. The various improvements and component parts have been developed by the various members of the engineering staff after a lot of hard knocks and over a considerable period of time.

These parts have been assembled into a well-tested machine that combines many features, and points the way to further improvements and extension of application in the refrigeration field.

Engineers Talk on Hermetic Service & Service Department Management

(Concluded from Page 1, Column 3)

ager of Gibson Electric Refrigerator Corp., Greenville, Mich.

Mr. Kessler was the first speaker, telling about Grigsby-Grunow's methods of servicing its hermetic line of refrigerators.

"In servicing hermetically sealed units the line is definitely drawn as to repairs that can be made in the home," stated Mr. Kessler in summing up the main concepts of service for hermetically sealed machines. "The service man can go but so far, and unless he *does* proceed to that point in properly diagnosing the complaint, unwarranted returns of units will inevitably result.

"We encourage distributors in metropolitan centers to adopt the 'home service plan' by which all service on refrigerators sold by the distributor as well as the dealers is centralized in the distributor's service organization.

"A charge is added to the dealer price to provide for this service during the period of the guarantee—the dealer may pass out of the picture, but the customer is protected during the period of his guarantee.

"Money received by the distributor for home service is set up as a reserve in their financial statements, and the factory endeavors to establish the amount of the monthly charge to the reserve so that it is not dissipated before the expiration of the period for guaranteed service. In the event a distributor should give up the line, the reserve balance is paid in cash to the factory, and the new distributor receives a monthly allotment for the continuation of the service.

"Thus, in the service and maintenance of hermetic units, a big problem which confronts us is the replacement and return of a unit which is not defective. This is an expensive procedure for distributor, dealers, and factory because 1. a flat charge for handling is levied by the factory; 2. no freight allowance is granted; 3. the distributor must carry a larger stock of units; 4. it affects customer good will.

"The service man cannot dissemble the units for a major repair in the home, and he should not replace a unit until a thorough diagnosis convinces him that a major repair is required.

"The service man working on hermetic units must be trained and equipped to diagnose a condition which confronts him on a service call by analyzing symptoms, and by a process of elimination to determine definitely the cause for the condition which he finds."

Mr. Kessler believes that service men on hermetics can best be trained by a combination of factory schooling, dealer's service schools, and practical experience in diagnosing field cases under the tutelage of a factory service representative.

"Our service manual has a section devoted to 'diagnosing complaints.' Every possible complaint is listed in the order of frequency of occurrence. Under the heading of 'unit runs continually without refrigerating,' for instance, we list five possible causes; under each cause is described the test, which must be made, the remedy to correct the cause, and the recheck test after the repair has been made."

Second on the program was Roger K. Braun of Kelvinator Corp., Detroit, who made a number of suggestions on making a distributor's service department profitable and more effective.

"Good service is one by which the customer can secure prompt, courteous, efficient, and economical service when desired, and at a profit to the service department," Mr. Braun told his audience.

"To make the service department successful and profitable it should be operated with due consideration to the following: 1. the effect of good and poor service on customers; 2. effect of word-of-mouth advertising by users on potential prospects; 3. effect of departmental profit and loss on the distributor's total profit.

"After installation, the sales department has few contacts with the customer, the majority of the contacts being through the service department. The responsibility of keeping the owner satisfied and sold on the equipment rests on the service manager.

"The service manager must *manage* service. He is responsible for his personnel, department expenses, claims and complaints, records, equipment and tools, training of personnel, parts, and dealer contacts."

In the matter of collections, it is our recommendation that all service calls and equipment not under the guarantee, and excepting repeat, inspection or no charge calls, be handled on a c.o.d. basis. As an incentive to collect c.o.d. charges on service, the service man can be given a percentage of the money collected, usually 5 per cent.

"A company selling refrigeration is somewhat more limited than some other businesses to increase its volume of service. It is possible, however, to increase the service department business by a program of planned service covering repair and accessory sales.

"For instance, Kelvinator Corp. has been using a plan known as the 'User Good-will' campaign. This campaign is based upon the idea of rendering a definite service to owners of older models by giving an inspection, during the off-season months, of such equipment free of charge, recommending necessary repairs, and selling accessories."

The work of independent training schools was then discussed by E. P. Sorenson. "The Utilities Engineering Institute's method of training service men is to begin with the simplest fundamentals and then to take the student step by step through each phase of the work in an interesting and easily understandable manner," stated Mr. Sorenson.

"The average student is not an engineer. He is a mechanic who usually has had only a part of a high school education. The training must therefore suit the needs of all classes of students, and our 'terminology' cannot be too high-sounding.

"Our course is designed for spare time study by busy men. It is prepared in loose-leaf pamphlet form, so that the student can carry a lesson in his pocket for study during spare moments, and so he may be able to use it later for reference when he is out on jobs.

"Our next step is to rewrite the data received from the manufacturer to suit our needs for the extension training. The material we receive from manufacturers is usually put in terms which are too technical for our students, and we have to re-word it in language which they can grasp.

"During the course of a student's training he works out 480 practical problems (10 for each of the 48 lessons) which he submits to the institute for comment, constructive criticism, and grading.

"Our training course covers both household and commercial equipment, and all the various kinds of refrigeration systems. From five to ten months are required for completion of the course, the exact time depending upon the ability of the student to learn, and the amount of time he devotes to study.

"Upon graduation, the student is eligible to come in to Chicago for two weeks of intensive shop practice at the Institute laboratory. During these two weeks he tears down and rebuilds a complete refrigerating unit of conventional design and installs it as a remote installation. On completion of this work the remainder of his time in the laboratory is spent in work on other makes and types of equipment, in testing and repairing, and other kinds of service work."

To clarify the operation of the thermostatic expansion valve, Mr. Wile emphasized the fact that its prime function is simply "to keep the coil full of refrigerant."

Hence service difficulties with the valve fall into two general classes: either the coil is being starved, or the coil is being flooded over with refrigerant. These are both remedied by adjustment of the valve.

The thermostatic expansion valve is composed of an element like that in an automatic (constant-pressure type) expansion valve, plus a thermostatic power element arranged to oppose the spring of the first element.

The thermostatic element is simply a bulb, charged with a small quantity of refrigerant, connected by small tubing to a bellows in the valve.

Operating theory of the thermostatic valve is based on the maintenance of a constant degree of superheat in the coil, he explained. Superheat is kept constant by action of the thermostatic element and the pressure element, opposing each other to regulate the flow of refrigerant.

The main problem of installation develops during a shut-down of a system, Mr. Wile related, when a higher pressure created in the thermostatic bulb forces the valve open and permits refrigerant to get over into the suction line. This is remedied by attaching the bulb to a point on the suction line which is so close to the evaporator that the bulb will not warm up faster than the evaporator itself, he pointed out.

In conclusion Mr. Wile diagrammed the installation of two-temperature jobs where thermostatic valves independently maintain different temperatures when operating with the same condensing unit. In such installations, the valve for the higher temperature is adjusted to operate at a higher superheat.

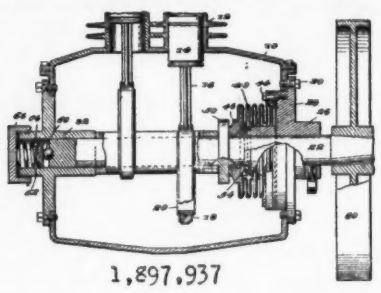
Just before adjournment of the session, Elmer Born of Gibson was called upon for a few minutes. Mr. Born described a simple method of adjusting automatic expansion valves on household refrigerators. It consists of a sensitive indicating thermometer operating on the pressure-temperature principle, and is used for setting expansion valves and temperature controls by direct reading of the thermometer.

PATENTS

ISSUED FEBRUARY 14, 1933

1,897,937. SEAL FOR COMPRESSORS. Maurice E. Joyce, Brentwood, Md., assignor of one-half to Edward L. Mahoney, Lanham, Md. Filed July 28, 1932. Serial No. 625,387. 14 Claims. (Cl. 286—11.)

1. A seal for a compressor shaft wherein a relatively long bearing surface is obtained with a minimum length of the shaft,



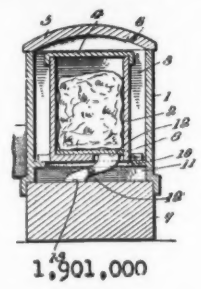
1,897,937

and in which the shaft bearing projects into the crank case, a corrugated tubular sealing bellows secured to the crank case and having the major portion thereof sleeved over the said bearing and the portion of the shaft embraced by the inwardly projecting portion of the bearing, a sealing ring secured to the inner end of said bellows, said shaft being provided with a shoulder engaged by said sealing ring, and mechanism for maintaining the sealing ring in engagement with said shoulder including a spring urging relative axial movement of said shoulder and sealing ring toward each other and seal aligning means sleeved on the shaft between the sealing ring and the inner end of the bearing.

ISSUED MARCH 14, 1933

1,901,000. HEAT TRANSFERRER FOR CONTROLLING SOLID CO_2 FOR REFRIGERATION PURPOSES. Walten B. Robe, Towson, Md., assignor to Thermal Control Corp., a Corporation of Delaware. Filed April 8, 1930. Serial No. 442,637. 12 Claims. (Cl. 62—91.5.)

9. An apparatus of the character described comprising an outer container, an inner container adapted to hold solid CO_2



1,901,000

and having a space between the containers, means for conveying the CO_2 vapor from the inner container to the space between the inner and outer containers and means for making a thermal connection between the inner container and outer container and thermostatic means for controlling the thermal connection between the inner and outer container.

1,901,014. MILK COOLING AND STORING APPARATUS. George E. Wallis, Evanston, Ill., assignor to The Creamery Package Mfg. Co., Chicago, Ill., a Corporation of Illinois. Filed June 12, 1931. Serial No. 543,832. 4 Claims. (Cl. 257—200.)

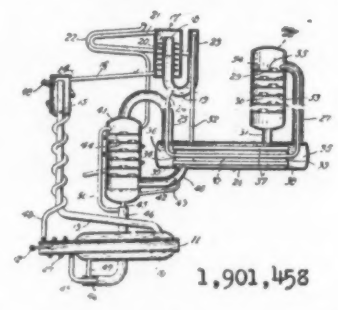
1. Milk cooling and storing apparatus comprising, a tank, a cooler mounted thereon, means for positioning said cooler alternatively outwardly of said tank and within said tank, means for directing a flow of milk over said cooler in outward position for entry into said tank, and means for supplying refrigerant to said cooler, said cooler being partially immersed in said milk when within said tank.

1,901,389. PROCESS FOR LIQUEFYING AND RECTIFYING AIR. Maurice Hazard-Flamand, Douai, France. Filed Oct. 9, 1929, Serial No. 398,459, and in France Oct. 18, 1928. 3 Claims. (Cl. 62—175.)

1. A process for liquefying air which comprises passing the air under high pressure through an exchanger and then through a refrigerator, dividing the air after it has passed through the refrigerator into two streams, expanding one of said streams in a low pressure liquefying chamber, expanding the other of said streams in a work performing device operable by the expansion, returning the unliquefied air under low pressure from the liquefying chamber in heat exchange realtionship to the air flowing to the liquefying chamber, and also returning the expanded, low pressure air from the work performing device in heat exchange relationship to the air flowing to the liquefying chamber.

1,901,458. REFRIGERATION. Alvar Lenning, Jackson Heights, N. Y., assignor to Electrolux Servel Corp., New York, N. Y., a Corporation of Delaware. Filed May 28, 1929. Serial No. 366,700. 9 Claims. (Cl. 62—119.5.)

1. In an absorption refrigerating apparatus, a generator, a condenser, an evaporator and an absorber, means to supply



1,901,458

liquid refrigerant to the evaporator, means to circulate an absorption liquid between and through said generator and absorber, a gas conduit for conducting vaporous refrigerant from said evaporator and introducing the same above the liquid level in said absorber and adapted to receive excess unevaporated refrigerant from the evaporator, and a branch conduit connected to said gas conduit for withdrawing unevaporated refrigerant from said gas conduit and introducing the unevaporated refrigerant below said liquid level in the absorber.

1,901,478. COMPRESSOR AND VALVE THEREFOR. Grover C. Sutton and Peter H. Witschge, Spokane, Wash., assignor to General Machinery Co., Spokane, Wash., a Corporation of Washington. Filed March 29, 1932. Serial No. 601,746. 8 Claims. (Cl. 230—230.)

6. In a non-return passage valve structure for compressors, a hollow valve shell having ingress and egress ports, closures therefor, and said shell having a stop shoulder, an abutment ring slidable along said shell, and a safety release spring adapted normally to hold said abutment ring against said shoulder.

1,901,505. APPARATUS FOR PRECOOLING REFRIGERATOR CARS. Fred E. Greene, Escalon, Calif., assignor to A. B. Humphrey Co., Mayhews, Calif., a Corporation of California. Filed July 31, 1929. Serial No. 382,311. 3 Claims. (Cl. 62—24.)

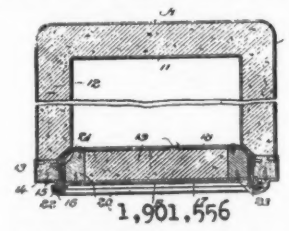
1. In combination with a refrigerator car having a side opening, ice bunkers at opposite ends of the car, said car being formed with lowed air passageways between the interior of the car and the bottom of the ice bunkers and upper air passageways between the interior of the car and the top of the bunkers, means for temporarily closing the upper air passageways, an air circulating apparatus communicating with the interior of the car through the side opening and with the upper ends of the bunkers from the exterior thereof, said air circulating apparatus being capable of creating a continuous circulation of air from the interior of the car upwardly through the ice bunkers and thence into the car through the side opening.

1,901,509. COMBINATION TRAY HEATING AND REFRIGERATING CABINET. Charles G. Hall, Boise, Idaho, assignor to Automatic Food Machinery Corp., Boise, Idaho, a Corporation of Idaho. Filed March 17, 1930. Serial No. 436,543. 2 Claims. (Cl. 312—176.)

2. A cabinet of the class described comprising a frame made of a plurality of ribs, side and end walls disposed about the frame, beams disposed transversely within the cabinet and in spaced relation with each other, a plurality of inwardly swingable doors secured to each of the side walls, an arm extending outwardly from each of the doors, a retracting spring secured to each of the arms and to a side wall, and a plurality of tray supporting bars secured to the beams, said bars being spaced from the doors sufficiently to allow clearance for them and being adjacent to and parallel with the doors when opened.

1,901,556. REFRIGERATOR. Lionel J. Gottschalk, New Orleans, La. Filed Sept. 17, 1929. Serial No. 393,176. 3 Claims. (Cl. 220—9.)

2. A refrigerator box comprising inner and outer sheathings and insulation between the sheathings, each of the sheath-



1,901,556

ings and the insulation being in the form of one piece dished member, a frame extending between the sheathings in abutting relation to the insulation member, and means securing the sheathings to the frame.

1,901,664. COOLING COIL, STORAGE TANK, AND MEANS FOR COOLING THE WATER IN THE TANK. Clark T. Morse and Edward L. Hogan, Detroit, Mich., assignors to American Blower Corp., Detroit, Mich., a Corporation of Delaware. Original application filed Feb. 12, 1931, Serial No. 515,368. Divided and this application filed Dec. 4, 1931. Serial No. 579,092. 3 Claims. (Cl. 62—129.)

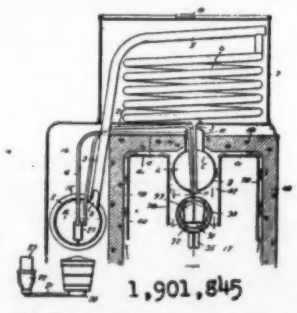
2. In combination, cooling coils, an air circulation system enclosing said coils, through which air is delivered to and from an enclosure, a storage tank for modifying the temperature of the liquid in the cooling coils by the use of the storage liquid, without direct contact between the liquid in the storage tank and the cooling coils.

1,901,794. ABSORPTION REFRIGERATING MACHINE. Edmund Altenkirch, Neuenhagen, near Berlin, Germany, assignor to Siemens-Schuckertwerke Aktiengesellschaft, Berlin-Siemensstadt, Germany. Filed Jan. 18, 1929, Serial No. 333,376, and in Germany Jan. 26, 1928. 9 Claims. (Cl. 62—119.5.)

1. In an absorption refrigerating machine, consisting of a boiler, a reabsorber, an evaporator and an absorber, containing an absorption solution and a working medium partly gaseous and partly in a condensed fluid phase, and furthermore containing an inert gas admixed with the gaseous working medium in the evaporator and the absorber, connecting pipes between the absorber and the evaporator, which permit circulation of the mixture of working medium and inert gas, a connecting pipe between the reabsorber and the evaporator for conveying the absorption solution enriched in the reabsorber into the evaporator for the purpose of liberating gaseous working medium from the solution into the admixed inert gas, means for cooling said enriched solution to a temperature lower than that prevailing in the reabsorber during operation and means for effecting a heat interchange between the said rich absorption solution and the mixture of gaseous working medium and inert gas flowing from the absorber into the evaporator.

1,901,845. THERMAL SHIELD FOR THE FREEZING SPACE OF REFRIGERATION APPARATUS. David F. Keith, Cleveland Heights, Ohio, assignor to Perfection Stove Co., Cleveland, Ohio, a Corporation of Ohio. Filed April 27, 1929. Serial No. 358,441. 10 Claims. (Cl. 62—95.)

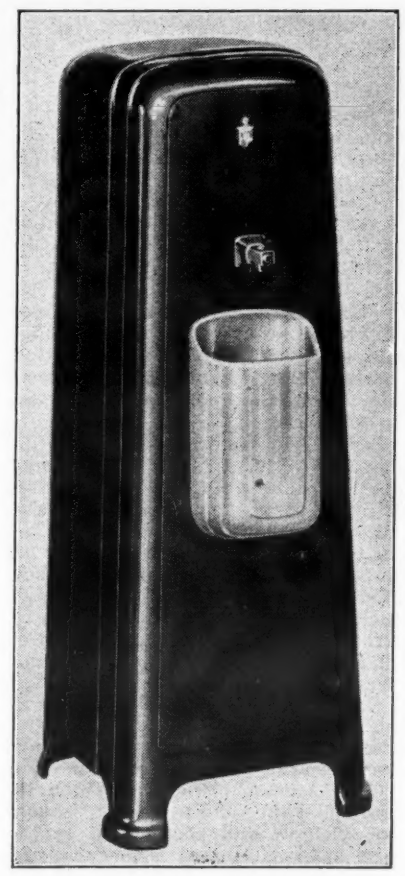
1. In refrigeration apparatus, in combination with a structure enclosing a refrigeration compartment, a cooling unit



1,901,845

situated within said compartment, a holder for a substance whose temperature is to be reduced to or maintained at a substantially given value by heat interchange with said unit, a double wall receptacle spaced from the cooling unit and whose inner wall encloses said holder, and a liquid in the space between the inner and outer walls of the receptacle whose freezing point is below the said given temperature value and above the lowest temperature of the cooling unit.

Modernistic



Kelvinator's new pressure-type water cooler.

KELVINATOR INTRODUCES 2 MODERNISTIC COOLERS

(Concluded from Page 1, Column 2)

cooled from 80° to 50° F. at a room temperature of 90°.

Cabinets of the two new coolers are all steel, one piece. The entire cabinet is spot welded and bonderized. Exteriors are finished in two coats of golden bronze while interior surfaces have black panel finishes.

Both the cooling unit and the cold water lines are insulated with granulated cork to eliminate line losses, while the cabinets are further insulated against sound.

Waste receptors are of crystal glass with chromium plated splash guards. Faucets are of the self-closing push-in gravity type, chromium plated.

The cooling and condensing units are built as a single unit. The compressor is mounted on rubber while the fan motor is spring mounted. The cooling unit uses the sleeve type of direct cooling.

Temperature is controlled by an adjustable thermostat accessible from the rear. Storage capacity of the new coolers is slightly more than ½ gallon.

LEONARD ADDS TO NEW LINE OF WATER COOLERS

DETROIT—With first announcement of its electric water cooler line only one month past, the Leonard Refrigerator Co. here is introducing this week a new water cooler to sell for $99.50 (maximum price) at any point in the United States, and is making a downward adjustment of prices for its entire eight-model water cooler line.

The new unit will cool water from 80° F. to 50° F. at the rate of one gallon per hour, at 90° F. air temperature, Leonard engineers claim.

R. I. Petrie, Leonard general sales manager, explains that the maximum price of $99.50 is exclusive of electrical or plumbing connections, the latter, of course, not being required by the bottle-type cooler.

The new cooler comes in two types—bottle and pressure. Each cabinet is all-steel, one piece. It is spot welded, bonderized, and primed before its final finishes. All supports are spot welded.

Exterior is finished in two coats of golden bronze; the interior surfaces in black panel finish.

The cooling unit is insulated with 2-in. granulated cork around sides and bottom and with 1-in. granulated cork at the top. All cold water lines are insulated with the same material. The cold water line to the faucet and through the cabinet is also insulated.

Waste receptor is of crystal glass, with a chromium-plated splash-guard. The faucet is of the self-closing, push-in gravity type, plated with chromium.

The condensing unit, cooling unit, high-side float, and temperature control are built into one complete demountable unit. The compressor is spring-mounted on rubber cushions and the fan motor is spring-mounted.

The cooling unit is of the sleeve type, with approximately 4½-pts. storage capacity.

BRIGGS DESIGNS NEW LIGHT-WEIGHT SINKS

DETROIT—First tested by George B. Bright's low-temperature laboratory for possible porcelain chipping with severe changes in temperature, two kitchen sinks made of 14-gauge sheet metal have just been announced by Briggs Mfg. Co. here. The new sinks are being manufactured by the commercial division of the company which handles refrigerator cabinets, according to J. H. Callahan, manager of the division. They will be sold chiefly through plumbing contractors.

Due to the lightness of sheet metal as compared with cast iron which is customarily used for kitchen sinks, the new Briggs products should save materially in shipping costs, Briggs officials point out. Also, it will be possible for one man to install one of the new sinks.

The single drain-board model, 43 in. long, weighs only 50 lbs. as compared with a weight of 190 lbs. for a cast iron sink in the same size. The double drain-board type, 60 in. long, weighs 70 lbs. instead of 300 for a cast iron type.

The sinks are made from one piece of 14-gauge Armco iron with the new silver etched finish devised to give an improved enamelling surface. Some 18 operations are performed on the stock, with 15 presses and some 80 tons of dies.

The formed sinks are sand blasted or pickled and given a ground coat which is baked on at 1600° F. The first coat of porcelain, applied by the wet process, is baked on at 1550° F., whereas the second coat is baked at 1500° F. Last coat of finish, the acid-resisting porcelain, is baked on at 1450° F.

The sinks are available in various colors in addition to white, according to Mr. Callahan, including ivory, green, etc. They are crated and shipped in plywood boxes.

To discover any inclination of the porcelain to chip under quick changes of temperature such as might occur in taking a sink from a heated storeroom out onto a motor truck, several tests were run in the Bright laboratory.

The sink was first placed for a day in the hot room at 144° F. and pounded with a wood mallet, according to Robert Doremus, chief engineer of the George B. Bright Co.

Next the sink was quickly introduced into a low-temperature room at –22° F. and the same pounding treatment applied. Finally, the sink was brought out into normal temperatures and pounded again, but no chipping was apparent, Mr. Doremus showed. Changes from one temperature to another were made in less than ¼ minute, he says.

Speakers Debate on Ice, Electric Refrigeration

NEW YORK CITY—A debate between an ice man and an electric refrigerator man on "The Relative Merits of Domestic Electric Refrigerators and Modern Ice Refrigerators" marked the last session of the local chapter of the National Association of Practical Refrigeration Engineers here. The meeting was held at the Herkimer Institute of Refrigeration.

C. F. Holske of the Knickerbocker Ice Co. championed the cause of ice refrigeration, while Herbert Herkimer spoke for electric refrigeration. At the close of the meeting the delegation inspected Mr. Herkimer's school.

QUESTIONS

Colors to Designate Refrigerants

No. 1118 (Manufacturer, Wisconsin)—"We have been asked for information as to whether a system of colors has been adopted to designate the various refrigerants. I presume this refers particularly to containers or pipe lines used in connection with refrigerants. Kindly advise us whether anything along this line has been brought to your attention."

Answer—Except for color schemes used by some individual refrigerant manufacturers to designate the kind or grade of refrigerant contained in a drum, we have no information about a standardized practice.

The Compressed Gas Manufacturers Association does not recommend the use of color schemes for identifying the content of cylinders, contending that the designation of any compressed gas cylinder should be made by imprinting the name of the gas directly on the cylinder.

Refrigeration Directory

No. 1119 (Finance Company, Illinois)—"We are writing to find out if it is possible for you to furnish us with a 'REFRIGERATION DIRECTORY and MARKET DATA BOOK' which includes a list of serial numbers that will tell us which year any particular refrigerator was built."

Answer—The REFRIGERATION DIRECTORY and MARKET DATA BOOK with October (1932) SUPPLEMENT is available at $1 per copy. However, it does not give the serial numbers placed on equipment by manufacturers each year. Such information has never been made available.

Vacuum Refrigeration

No. 1120 (Manufacturer, New York)—"Where can we obtain information about vacuum refrigeration systems?"

Answer — These three companies have announced vacuum refrigeration systems: Carrier Engineering Corp., 850 Frelinghuysen Ave., Newark, N. J.; Foster Wheeler Corp., 165 Broadway, New York, N. Y.; and Ross Heater & Mfg. Co., Inc., 1407 West Ave., Buffalo, N. Y.

Type of Electric Refrigerators

No. 1121 (Department Store, South Dakota)—"Please send us a bulletin on the principles of electric refrigeration, including information on the different types and makes, with their specifications."

Answer—We suggest you subscribe to ELECTRIC REFRIGERATION NEWS. Note advertising columns for features of popular makes now on the market. For complete specifications of 273 models made by 35 different companies, see the March 22, 1933, issue.

Beer Pumps and Spigots

No. 1122 (Manufacturer, Ohio)—"If you have the information, will you kindly send us the names and addresses of manufacturers specializing in beer pumps? We are also interested in the names of companies making draft arm spigots for bars and beer dispensing equipment."

Answer—See information on beer refrigerating equipment in this issue. Manufacturers of equipment for brewing and beer dispensing are invited to report such products to the Engineering Editor of the NEWS.

Beer Cooling Coils

No. 1123 (Contractor, Chicago)—"We are desirous of securing data on refrigerating coils for beer cooling. Can you inform us who is manufacturing such coils?"

Answer—Fedders Mfg. Co., 57 Tonawanda St., Buffalo, N. Y.; Frigidaire Corp., Dayton, Ohio; and Liquid Cooler Corp., 1349 E. Milwaukee Ave., Detroit, Mich., have designed special beer-cooling coils.

Draft Beer Cooling

No. 1124 (Manufacturer, Ohio)—"We are interested in getting some information on draft beer cooling, and will appreciate your help in supplying the following information:

"1. How much objection would be encountered with a direct cooling unit, that is where the beverage tubes are in direct contact with the refrigerant?

"2. How much objection would be encountered with a cooling unit having no provision for blowing out the beer cooling coils with live steam?

"3. Can you suggest any concerns who have available a cooling unit especially adapted to beer cooling?"

Answer—Referring to the order of questions above:

1. No objections have been raised to cooling beer with a unit in which the beverage tubes are in direct contact with the refrigerant. In this respect, beer may be cooled just like water in direct expansion water coolers.

2. Omission of some provision for cleaning the cooling coils would probably be objectionable to the beer vendors. Beer cooling coils must be cleaned regularly, according to beer experts, otherwise the beer acquires a sour taste. In the old days this cleaning was done with steam, but new practice appears to favor the use of a warm solution of caustic alkali.

3. See answer to Question No. 1123 above.

Copper and Tin Ice Cube Trays

No. 1125 (Distributor, Puerto Rico)—"We are anxious to secure ice cube trays made of copper and tin. We have written to several companies listed in your DIRECTORY, but these replied asking us to purchase other types. We don't want aluminum trays. Will you please put us in touch with some manufacturer that will produce what we want?"

Answer—The NEWS will be glad to forward the name of any manufacturer who can furnish the product as specified.

Bellows

No. 1126 (Distributor, Massachusetts)—"Please advise us where we can buy sylphon bellows stock in various sizes and weights?"

Answer—Bridgeport Brass Co., 778 E. Main St., Bridgeport, Conn.; Clifford Mfg. Co., 564 E. First St., Boston, Mass.; and Fulton Sylphon Co., Knoxville, Tenn.

Aerocars

No. 1127 (Distributor, Virginia)—"Kindly give us the firm name and address of the company which makes Mr. Parrish's Aerocars, described in your issue of March 15."

Answer—Aerocar Company of Detroit, 7424 Melville Ave., Detroit, Mich.

FINANCIAL STATEMENTS

Borg-Warner Corp.

DETROIT—Consolidated net loss of the Borg-Warner Corp., parent concern of the Norge Corp., for 1932 showed a net loss of $598,300 as compared with a consolidated net income of $1,208,210 in 1931.

Net operating profit aggregated $1,249,913 last year compared with $2,894,150 in 1931. An improvement was made in the cash position, the increase being from $1,184,736 in 1931 to $3,558,977 in 1932.

Total current assets on Dec. 31, 1932, were $12,673,847 against current liabilities of $1,117,614, a ratio of 11.3 to 1.

Minneapolis-Honeywell Regulator Co.

MINNEAPOLIS — The Minneapolis-Honeywell Regulator Co. reports a net profit of $190,323 for 1932. This compares with $680,524 net profit in 1931.

Net sales for 1932 amounted to $3,636,617 as compared with $5,441,073 in 1931.

Radio Corp. of America

NEW YORK CITY—Net loss of $1,133,585, after interest, depreciation, etc., is reported by Radio Corp. of America for the year ended Dec. 31, 1932.

Gross income of Radio Corp. and its wholly owned subsidiaries for the year 1932 was $67,361,142, a decrease of 34 per cent as compared with the gross income of 1931.

The consolidated balance sheet at Dec. 31, 1932, showed a ratio of current assets to current liabilities of 8.23 to 1. At the end of 1931, the ratio of current assets to current liabilities was less than 2 to 1.

San Diego Dealers View Grunows

SAN DIEGO, Calif.—Dealers in this territory viewed the new Grunow refrigerator at the El Cortez hotel here at a three-day showing which closed Saturday night, March 11.

A. C. Lane, Jr., field representative for Watson & Wilson, Grunow distributor, was assisted in conducting the showing and demonstrations by W. E. Darden, Grunow's Pacific Coast sales manager.

At the close of the show it was announced that Dutton's Radio Store and the San Diego Auto Electric Co., dealers, had taken on the Grunow line. Announcement of other dealership appointments is expected to follow shortly.

Frigidaire Line Shown At Texas Meeting

SAN ANTONIO, Tex.—One hundred twenty five Frigidaire dealers and salesmen heard new Frigidaire sales plans and saw the new 1933 line of Frigidaire products at a spring convention held at the Gunter hotel here two weeks ago.

E. A. Cox of Cox & Blackburn, San Antonio Frigidaire distributor, presided at the meeting while George S. Jones, Frigidaire public utility sales manager, headed the crew which staged the convention program.

CLASSIFIED

PAYMENT in advance is required for advertising in this column.

RATES: Fifty words or less, one insertion $2.00, additional words four cents each. Three insertions $5.00, additional words ten cents each.

POSITIONS AVAILABLE

WANTED: Representatives for our thermostat repair service. Protected territory available as side line for men now calling on domestic refrigeration service trade. Liberal commissions, no outlay. Halectric Laboratory, 1793 Lakeview Road, Cleveland, Ohio.

EQUIPMENT WANTED

CAN USE Servel and Copeland commercial units ½ to 3 H. P. Also Larkin coils in any quantity new or used. Will take immediately and pay cash. Give full details and price in first letter. Box 555.

DISTRIBUTORS WANTED

GOOD opportunities open to distributors who are able to handle a complete line of Refrigeration gases and Lubricating oils. No wasteful or dangerous transfers. Territory reserved. Box 551.

INDEPENDENT SERVICE COMPANIES

CALL AL HENDERSON for service on all makes of Refrigeration Equipment. Estimate gladly given. Phone 3-1717, 102 So. Lewis, Tulsa, Oklahoma.

CHICAGO, ILL., and ALL SUBURBS. Refrigeration service, installation, maintenance. All makes—One of the oldest independent service organizations in Chicago with competent staff of thoroughly trained men. Financially sound. Inquiries invited from mfrs. and distributors. Refrigeration Maintenance Corp., 365 E. Illinois St., Chicago, Ill. Phone Superior 2085-86-87.

Manufacturers — Distributors—Commercial, domestic installation and service in Camden —Burlington—Gloucester Counties. Gordon & Melick, 780 Wright Ave., Camden, N. J.